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ABSTRACT

This manual, developed for training Peace Corps volunteers for service in developing countries, explains the process of agricultural extension and provides practical guidance on carrying out an agricultural extension program. The manual is organized into six chapters. The first chapter explains what agricultural extension is and how it is used in the Peace Corps. The second and third chapters concentrate on background information for beginning and carrying out an agricultural extension program. Information is given on resources, planning, record keeping and providing direct and indirect services to farmers. In the fourth chapter, suggestions for conducting farmer training are given, with emphasis on teaching methods and materials. The fifth chapter explains how to organize a farm cooperative, including group dynamics, training leaders, and defining issues and tasks. In the final chapter, management and evaluation of an agricultural extension program are discussed. Appendixes to the manual present comparative case studies, information on technical manuals and extension training, and a bibliography and resource list. (KC)

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Peace Corps

AGRICULTURAL

EXTENSION

MANUAL M-18

Michael J. Gibbons
and
Richard Schroeder

PEACE CORPS
Information Collection and Exchange
July 1983
February 1984

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The most significant contribution to this manual has been made by farmers who have educated extension workers about the process of change. Andrea Eykyn and Julia Simmons are the technicians who produced the text. Sue Cass executed the illustrations.

We also learned from a host of extension workers with whom we've worked in various settings. These include Tom Mester, Peter Menard, Dan Nagengast, David Leonard, David Yohalem and our counterparts overseas.

This manual is based in part on the extensive Agricultural Program manuals produced by Basico, Inc. for Peace Corps in 1970, and on our experience training numerous Peace Corps volunteers in agricultural extension.

Thanks also to Donna Frelick, Calvina Dupre and Franklin Moore for support and advice.

Michael Gibbons
Rick Schroeder

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Appendices

A. Comparative Case Studies

B. Technical ICE Manuals

C. Extension Training

D. Bibliography and Resources

WHAT IS AGRICULTURAL EXTENSION?

JUL 9

WHAT IS
AGRICULTURAL EXTENSION?

Peace Corps and Agricultural Development

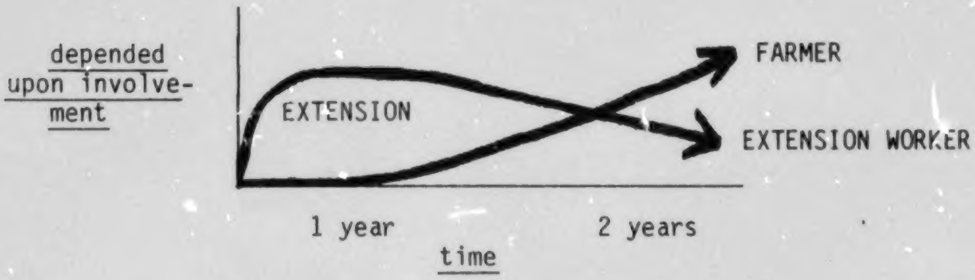
For Peace Corps, development centers on building local capacity and self-reliance among those who need it most. Accordingly, Peace Crops promotes approximately 35 agricultural extension programs reaching small-scale farming families world-wide.

As agrarian nations, developing countries look to agriculture to stimulate long term economic development. In addition, population growth has kept pace with increased food production since 1960, leaving the world hunger problem unresolved. Inequitable food distribution systems and post-harvest losses maginfy the current food deficit. These issues add up to a crisis and a mandate for agriculture in developing countries.

Being the most numerous agricultural producers, small-farm families are deeply affected by such challenges. The situation is made more urgent by the inaccessibility of agricultural support services. This is due to the pervasive skewing of support services to larger and more productive producers.

Peace Corps Agricultural Extension Workers attempt to alleviate this crisis by reaching out specifically and personally to small-scale farming families in the manner described in this manual. This is consistent with Peace Corps' mandate to help those most in need. Extension workers foster effective two-way communication between farmers and support services in the role of facilitators. They help farmers develop a new sense of COMPETENT AUTONOMY, as they confront together the world that is changing around them.

DEVELOPING COMPETENT AUTONOMY



The Small Scale Farmer

First and foremost, each farmer and family is individual, uniquely struggling to respond to the various factors which affect their success in the process of adaptation called farming. Despite rich personal, local and regional diversity, however, these people share a number of important characteristics:

They are much more than just farmers. For example, they may be parents, religious or community leaders, masons, carpenters, healers, blacksmiths, truck drivers, etc. In these diverse roles, small-scale farmers participate in complex local religious, social and economic patterns and are subject to a wide range of demands from them. Due to influences from beyond the village, these farmers also have changing aspirations for material well-being, status, etc. Many have changing social identities too, moving from family, village and tribe or region membership toward national citizenship. They all are cultural beings and family members first.

Secondly, these are skilled and experienced farmers. They are experts in the local conditions affecting agriculture. They are practitioners of local agricultural and other technologies (e.g.-hoeing, plowing with oxen, making tools, etc.) In the face of change, they are also farmers in transition between traditional and newer agricultural practices. They are aware of outside inputs and new techniques. They seem to be open to producing a marketable or barterable surplus once family food needs are met.

Finally, small-scale farmers have economic concerns. They participate in local barter or subsistence economies, in which goods are either exchanged among neigbors or grown to be used at home. In these self-contained economies, farmers are not in the habit of investing in outside inputs or of using credit, except for meeting home needs. These farmers are usually limited to the family labor supply, or to a communal exchange of labor among neighbors. Most small-scale farmers operate as if they own or rent their land, as independent farmers, even though some are subject to tribal or community controls or to insecure tenancy.

Small-scale farmers share a village agricultural point of view. It is characterized by:

- A holistic outlook - Agriculture is a central activity, but it is only part of a whole, connected way of life. For example, things which can be contributed to farm work like money and labor are constantly required to meet other family needs as well. The village family allocates these resources by looking at the whole.

- Environmental Sensitivity - All farmers have to be extremely sensitive to their environments in order to survive. They sense from collective and individual observation what elements of the environment are critical to their success as farmers. They are particularly sensitive to cyclical things like rainfall and storm patterns. More than any one else, they know the mini-environments of their individual farms intimately.

- Local Focus - Small-scale farmers especially know alot about local things and much less about regional, national or global things. Most of these farmers interests are local as well.

- Self Interest - Each small-scale farmer has a list of priorities that helps her make decisions. This list defines a farmer's self-interest, which is a central part of her worldview.

- Farmer's Bias - A farmer's view of things is colored by the physical and economic realities of farm work. These practical preoccupations are uppermost in a farmer's mind.

- Tradition, Fatalism and Adaptability to Change - Carrying out the tradition of farming is a normal and reliable habit of mind. This unchanging habit of mind is negatively reinforced by adverse outside opinions about village people like small-scale farmers. It has also been reinforced by the inability of tradition to contend with the new problems brought on by accelerated change. As a result, one of the extremes of a small-scale farmers point of view is a kind of fatalism and feeling of impotence amid rapid change. The other end of the spectrum is a real, though often latent openness and adaptability to change, for farming is a constant process of successful adaptation. Like other people, small-scale farmers are ambivalent towards change.

For small-scale farmers with all the above characteristics, change is not worthwhile unless it is:

- culturally appropriate
- in agreement with self-interest
- respectful of tradition
- clearly benficial
- not economically risky

Elaborating on economic risk, John Guy Smith offered this description in 1970:

> "Farming is subject to numerous risks from weather, pests, diseases, price flunctuations and other uncertainties. For the small-scale farmer, these risks are accentuated by her precarious economic condition. Much of a small-scale farmer's supposed conservatium is really a very shrewd attempt to avoid or minimize risk.

For example, Yigi Kamara grows rice in Sierra Leone. Every year, he grows his crop during May to September, the rainy season. In August and September, while waiting for the harvest, the stores from the previous year dwindle, and there is a "hungry season". Yigi plants millet and cassava on a hillside in March and April to deal with this. In order to grow rice year round and perhaps even grow a surplus, Yigi is thinking of building gravity-fed ditches and dikes in a swamp near his hill farm. The work will take four months, from January to May. Is it worth the effort? If he doesn't plant millet or cassava, will there be enough food this "hungry season"? Can he afford a shovel? Will his family be able to harvest, thresh, store and grind all the expected new rice? Can he sell some to make it worthwhile? What will his neighbors say? What about the old stories about the dangers of working in the swamp?

Small-scale farmers like Yigi confront change as individual cultural beings, as practical farmers, and as economic producers. They have considerable resources which they bring to bear on the problems of agricultural production and livelihood in developing countries:

- Expertise in local technologies and a variety of practical skills (e.g. - masonry, carpentry, etc.)
- Expertise regarding local conditions affecting farming
- Status as independent economic units
- Experience as farmers (tradition)
- A practical, critical viewpoint
- Adaptability
- Openness to producing a usable surplus

Their limitations include:

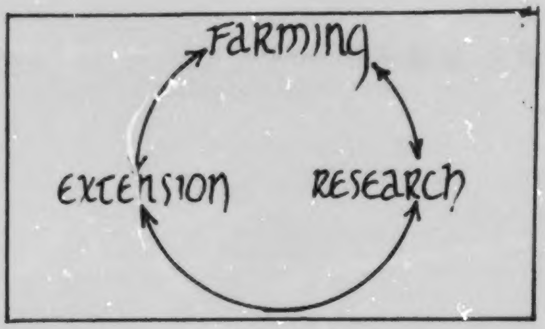
- Lack of capital beyond family supply
- Habit of not investing in or using credit or outside inputs.
- Interests and roles which compete with agriculture
- Little access to outside agricultural support services
- Reluctance to take risks

Along with these, however, there are factors from beyond the village which also limit the small-scale farmer's ability to deal with change. Most directed technological change, like the promotion of new practices, is based on the priorities and interests of development planners and leaders. This may exclude small-scale farmers or be irrelevant to their needs. Governments, development agencies and private businesses promote change this way. Examples may be mechanization or mono-cropping (cacao or sugar cane) which benefit large-scale farmers and foreign markets more than small-scale farmers.

Like Yigi, these small-scale farmers are the special clients of Peace Corps agricultural extension work. Given the unique nature of the problems they face, their strengths and their limitations, Peace Corps promotes a specific kind of agricultural extension designed especially to help small-scale farming families participate in the development process.

Two Way Communication

Agricultural Extension is effective two-way communication. It is the best way to include small-scale farming families in the process of directed change which has evolved as a response to the crisis which agriculture faces n developing countries. The formal framework within which most agricultural extension takes place is called the Farming - Research - Extension Chain. The chain is an organized process which directs technological change.

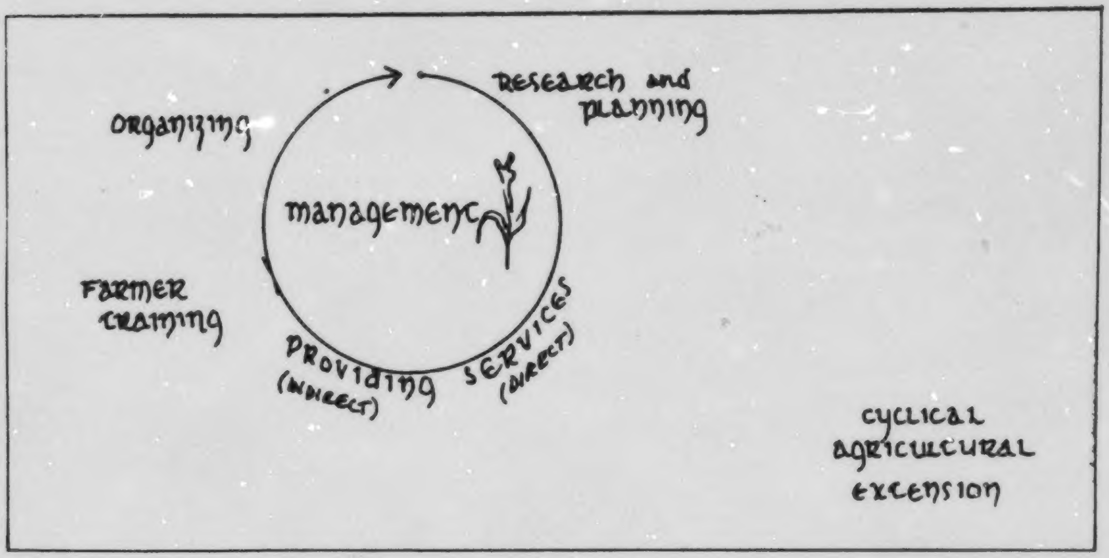


FARMING	o on-farm problems and experience
PURE RESEARCH	o biological science for academic purposes
BASIC RESEARCH	o agricultural sciences
APPLIED RESEARCH	o tests and experiments to "customize" recommendations to local conditions
	o small-plot tests (research centers)
	o on-farm experiments (researchers)
EXTENSION	o on-farm result tets (farmers and extension workers)
	o result-method demonstrations
	o farmer training efforts
FARMING	o farmer feedback and adjustment of recommendations

In recent years, the rate of change has accelerated to the point that farmers can hardly keep up with researchers. Two-way communication between practical farmers and scientific researchers is often strained and one-sided. In the United States where the research-extension process of providing new ideas to farmers is based on a tradition of farmer participation and control, one-sided communication can be held in check. But in developing countries, the situation is different. The research-extension process in these countries was established and directed by distant governments for colonial cash-cropping purposes. For example, vast tracts of traditional subsistence farmland in southern Sierra Leone were planted as cacao plantations in the 1940s and 1950s for export to Great Britain. As a result, farmers were given seed, fertilizer and other new inputs, and were told how to grow the cacao. Farmers in developing countries like Sierra Leone do not communicate with researchers via extension workers.

Now that the rate of change dictated by scientific research is accelerating, small-scale farmers can be left behind or ill-served by change.

Because Peace Corps wishes to include small-scale farming families in the change process, it emphasizes two way communication as its extension strategy. This manual outlines the skills and knowledge Volunteers need in order to practice this kind of extension work:


Research and planning
organizing
management
farmer training
Providing (INDIRECT)
SERVICES (DIRECT)
cyclical agricultural extension

RESEARCH and PLANNING	o Learning what farmers know, what they want, what the local situation is like and planning with local input.
PROVIDING AGRICULTURAL SUPPORT SERVICES (Direct/Indirect)	o Providing the services farmers need in order to develop, and understanding the important difference between working FOR and working WITH farmers.
FARMER TRAINING METHODS	o Understanding how farmers learn and carrying out appropriate training methods.
ORGANIZING COOPERATIVE ACTIVITY	o Understanding how people work in groups and building local institutions that capacitate and support farmers.
MANAGEMENT	o Integrating these steps into well-planned, carried out and evaluated village projects.

These extension tasks are at first carried out in rough chronological order. The entire process is cyclical, however, and each step is regularly repeated to insure two-way communication. This manual describes each extension task, illustrates it, and provides tools for carrying it out in the field.

Volunteers working on agricultural extension programs facilitate the two-way communication which invites small-scale farming families into the process of development. By doing so, Volunteers help develop the capacity and local self-reliance of those who need it most.

18

RESEARCH & PLANNING

RESEARCH and PLANNING

INTRODUCTION

An extension worker enters a community gradually. As an outsider she must first meet personal needs to establish social contacts with her neighbors and orient herself to her physical surroundings. Professional objectives are addressed later when the extension worker is more at ease in her interactions with the people she works with and can more carefully focus on agricultural practices and community problems. Regardless of the type of information being sought, however, an extension agent clearly establishes herself upon entering a community as one who is willing and able not to teach, but to learn.

Small scale farmers in developing countries have not traditionally had full access to extension services. There exists accordingly an acute lack of information as to how to make those services conform to small farmer needs. The extension worker assuming a learner's posture is one step toward bridging that gap. In order to complete the chain, villagers must step into the role of educators.

That villagers act as cross-cultural mentors of extensionists is assumed. What may be more significant is the vital function farmers can serve as historians and skilled practitioners of farming methods in a given area. When a small farmer educates an extension agent about what has happened in the past on her farm, the agent can help the farmer begin choosing appropriate steps to make improvements.

The information an extension agent gathers at the outset of an extension effort is based on a 'reality', a set of circumstances or perhaps an event. It is important to note that different individuals may interpret the same 'reality' in radically different ways. A jar is either half full or it is half empty; a harvest is either better than some years or worse than others.

Individual farmers' perspectives vary, and an outsider must be concerned with checking information gathered against independent sources. A similar check is warranted with regard to the extension worker himself. There is a strong tendency to 'selectively' hear answers to questions that conform to notions that prompted the asking of the questions in the first place.

This mutual 'filtering' of information occurs to a greater or lesser degree in all communication processes. Systematic checking of information will aid the extension worker in compiling a less-biased picture of the 'reality' referred to above.

The information-gathering an extension worker attempts is done in a cross-cultural context. Thus, sensitivity and respect are crucial to success. One must be willing to share information about oneself and must have the patience necessary to persevere under the sometimes difficult conditions imposed by linquistic and cultural barriers.

Information filters and cultural barriers provide cautions to an extensionist to go slow in the early stages of his work. One or more of the following suggestions could help an extension agent start on the right foot:

- o Consciously employ observation skills to complement information gathered through the interview process.

- Engage a translator or assistant who can help ensure that research is done in a culturally appropriate manner. (Counterparts often play this role).

- Use some 'random' process to select sources of information to prevent a skewing of results in one direction.

- Establish a routine of note-taking and record-keeping so that, later, information can be analyzed and plans can be made.

These and other choices pertaining to the methods used to gather information can be made more or less formal to suit the type of information being sought, the source, the interviewing 'climate' or the extension agent himself. After a body of information has been gathered, recorded, 'de-filtered', and analyzed, matches can be made between needs and resources, and the agent's role can be more clearly defined. Planning and problem-solving remain contingent, however, upon a continuing accurate flow of information between individual farmers and the extension agents who serve them.

"Understanding People"

OVERVIEW

Self interest is the basis for all that a farmer does. The source of a farmer's motivation, whatever it may be in a given case, can be quite obscure to the extension worker. A farmer who seems to be strong, intelligent, financially secure, and aware enough to be successful may still cling to his timeworn practices rather than opt for something new that he perceives to be against his interests. Neither repeated contact with an extension agent nor weighty scientific evidence will change his mind. The farmer's personal concerns - his religion, his desire for material possessions that he feels can be more quickly had by other means - are foremost in his mind. As such they are of primary concern to extension workers.

An extension agent needs to learn what the people she lives with value and consider important. This understanding is at the heart of the two-way communication process. Without it, the extensionist can gain no perspective on the appropriateness of the change she promotes. Nor can she determine what training methods are most suitable to local people's needs. Finally, and perhaps most importantly, the agent will be unable to empathize or even communicate effectively with her friends and neighbors.

To learn anything about a person's self-interest requires time and shared experience. It takes hours in hammocks and sweating over plow blades, eating from the same bowl and walking together in sadness in a funeral procession. The 'methods' used are informal, but the information gleaned is of crucial importance. The farming aspect of a villager's life, as was mentioned in Chapter One, is connected with all other aspects. Labor resources for farm work are also labor resources required by virtue of kinship and community ties to help maintain village roads and water supplies; money for improved livestock strains can just as easily become money for a niece's school fees. As an extension worker enters a community, then, and begins to make her initial social contacts, she should take note of the various special interests people display in order to better understand how to go about her work.

ILLUSTRATION

A case study of learning about self-interest:

> Felicia had a special interest in serving the needs of the women farmers in her area. One of the agricultural tasks Felicia observed as primarily a woman's responsibility was grain drying. Hours each day were spent spreading grain on mats and concrete slabs where it was allowed to dry in the sun. Because chickens and free ranging goats often tried to eat the grain as it dried, someone had to constantly be on guard to shoo them away.
>
> Felicia would often sit with her neighbors and talk as they watched their grain. She noticed that several of her neighbors occupied their grain drying hours by weaving mats. She asked the women if they were going to use the mats in their homes. Most replied that they intended to take their mats to a nearby market for sale. This they explained was the way that they were able to pay their children's school fees.
>
> On closer inspection, Felicia discovered that school fees were a major concern of most of the women in town. She talked with women who made clay pots, women who dyed cloth and women who hired themselves out to help weed neighbors' fields and she found out that not only were school fees the sole financial responsibility of women family members, but that the fees at the local primary school had nearly doubled in the past two years. This information eventually led Felicia to concentrate her extension work on very small-scale, cash generating projects to help meet local women's needs.

TOOL

A suggestive and partial list of small-farmer self-interests and motivations: (derived from Chapter One)

- o Pride in individual accomplishments
- o Filling a particular role in a family or community
- o Obtaining special material possessions
- o The sense of fulfillment in being able to use one's existing skills
- o Maintaining ties to tradition
- o Avoiding risk
- o Developing new skills
- o Reducing work load of existing tasks
- o Overcoming feelings of impotence

OVERVIEW

Development must begin where village people are, not where the extension agent wants them to be. For that reason, extension workers study the local community and its connections to the outside world. Basic familiarity with a community helps the agent function more effectively in meeting personal and work needs. Beyond that, it is also a structured, practical task that an extensionist can set before herself to help build confidence in using a new language and practicing local customs.

A simple first step is drawing a map of the physical features of the community. Much of the map's contents - roads, houses, markets, etc - can be gathered by observation. Details can be added by consulting neighbors. The point of the first rough sketch of one's site is to become oriented in a very general way to one's surroundings.

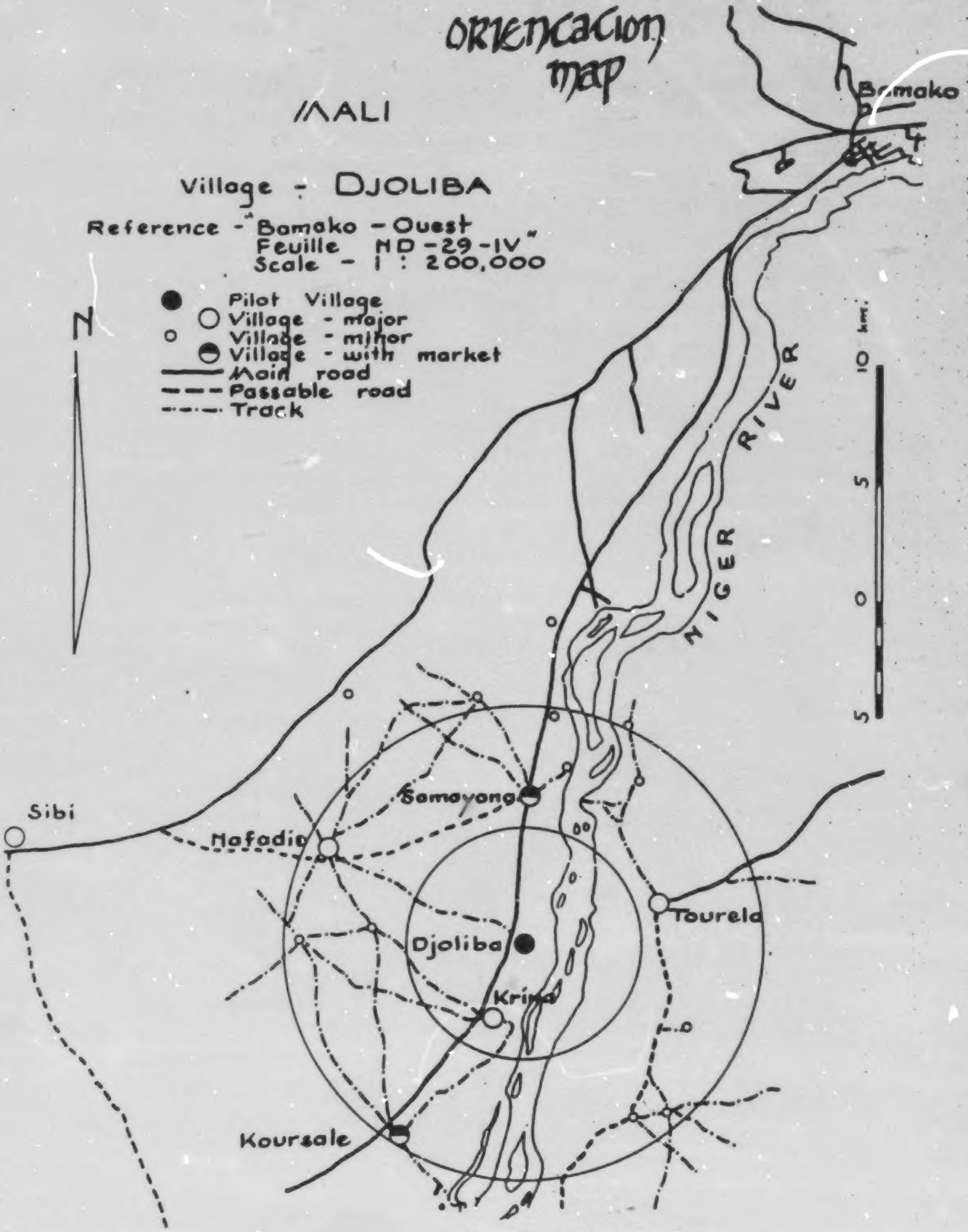
The newly arrived field worker should take care in the selection of initial informants. The easiest contacts to make are likely to be a landlady, her husband and relatives, the local government officials, talkative neighbors, a counterpart, or the "pet" farmers of the sponsoring agency. In any case, the extentionist should be careful not to let the earliest contacts weight impressions disproportionately.

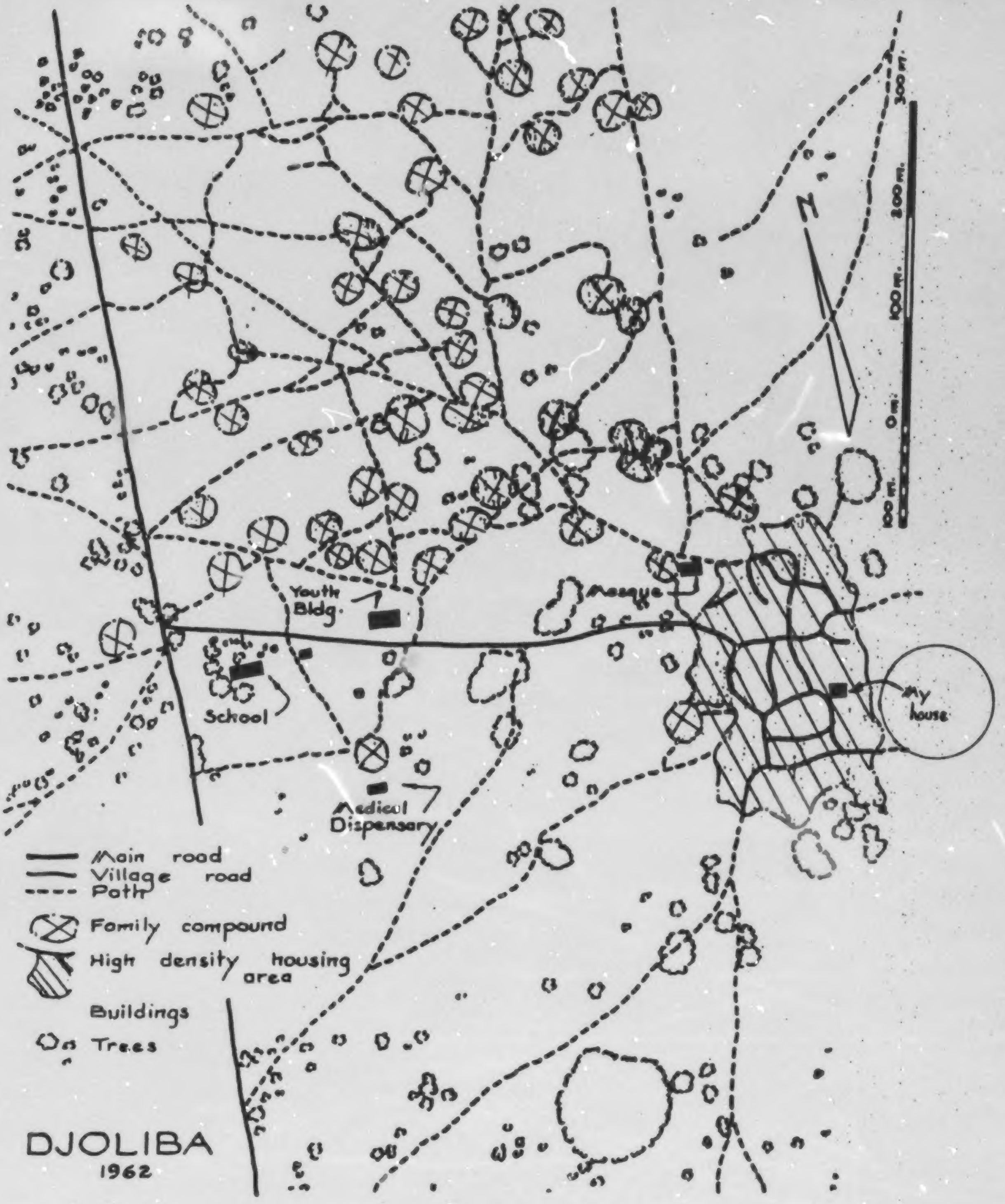
It is also important not be be overly formal in approaching a community survey. At this early stage, it is not wise to take written notes in the presence of an informant, though some sort of record is essential for later analysis and planning. What is known naturally by a local resident must be systematically written down by an outsider. Therefore, at the earliest opportunity after an interview - midday break or in the evening - new information can be preserved in a field notebook or diary reserved for this purpose.

The first round of information gathering is to help an extension worker orient herself to her surroundings. It is general and broad rather than specific and focussed on a narrowly defined aspect of a community. Naturally, a Community Survey is not completed in the first few weeks of a volunteer's service. It continues at various levels as an ongoing process in extension work. A single informant might during the course of a casual conversation offer interesting insights into a community as a whole as well as some of the more specific types of information referred to later in this chapter. At the same time he might display something of his personal interest (recall the discussion of information filtering in the introduction to this chapter). The task of the extensionist is to place each piece of information in its proper context. It is significant to note that regular repetition of research components serves as a means of monitoring change from the 'beginnings' where people were when the extension agent began her work.

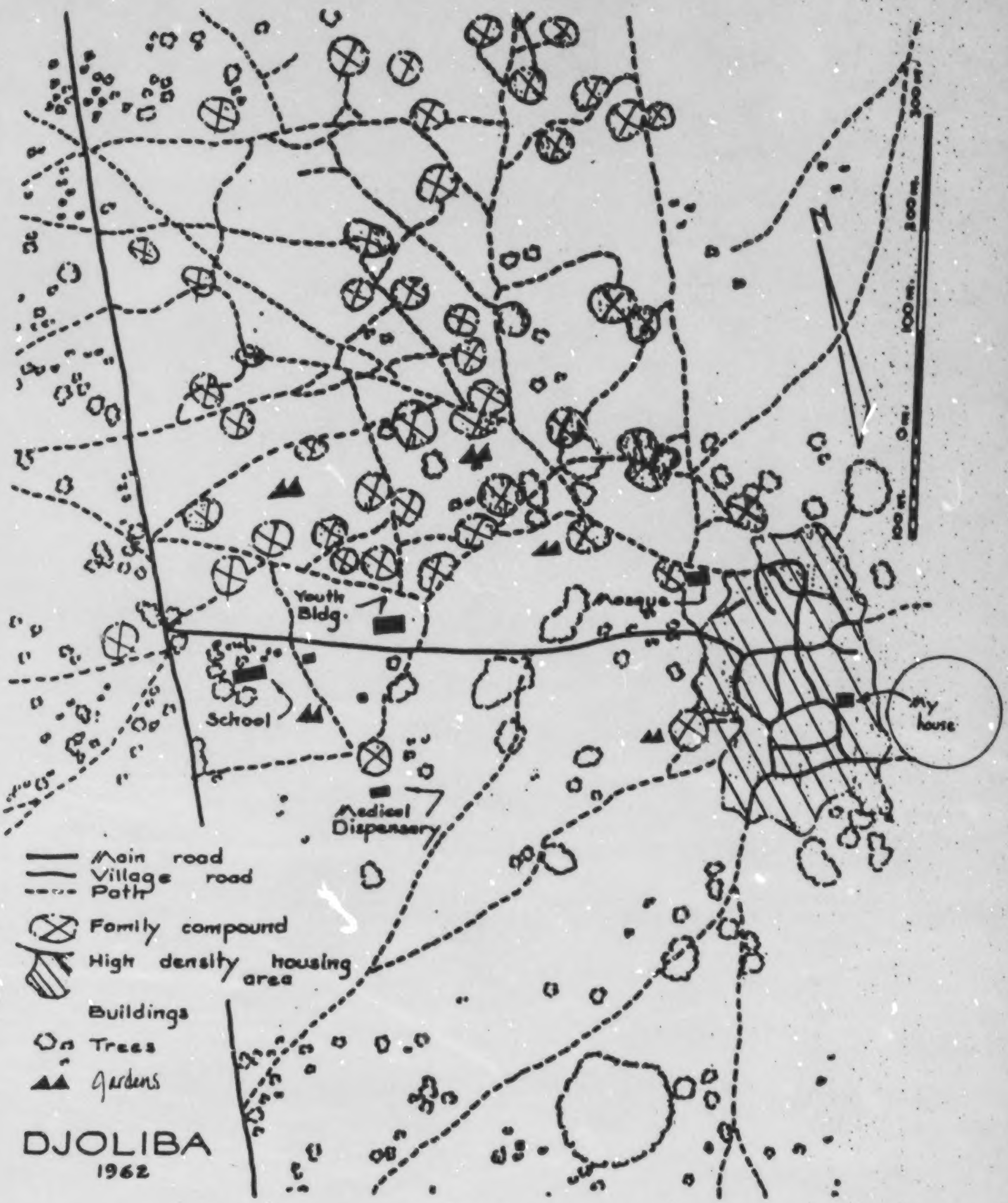
ILLUSTRATION

Overlay maps of the essential features of a community:


ORIENTACION map
MALI
Village - DJOLIBA
Reference - "Bamako - Ouest
Feuille ND-29-IV"
Scale - 1 : 200,000
● Pilot Village
○ Village - major
○ Village - minor
◒ Village - with market
Main road
Passable road
Track
N
Bamako
NIGER RIVER
10 km.
5
0
5
Sibi
Samayana
Mafadie
Djoliba
Tourela
Krina
Koursale

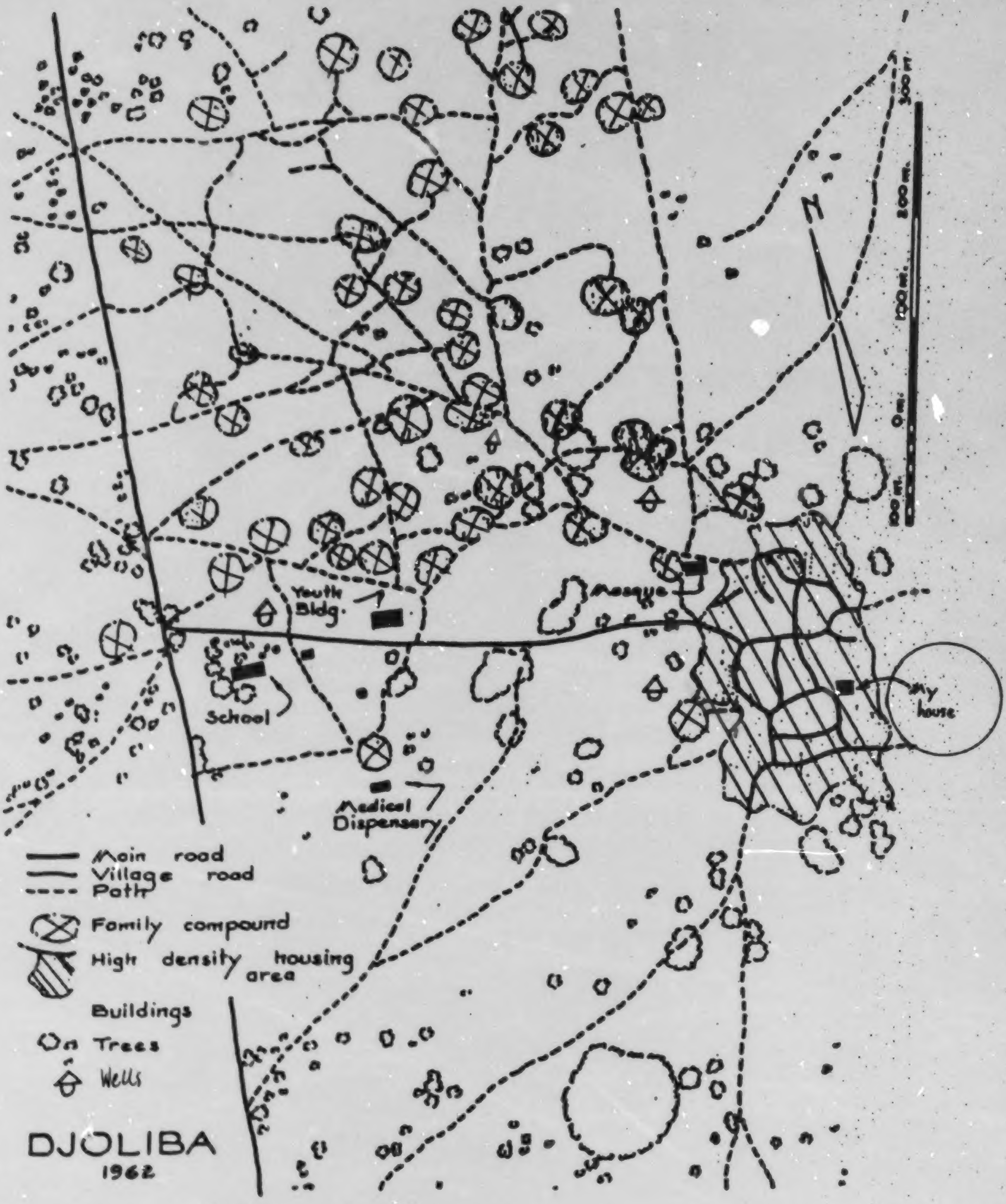

Youth Bldg.
Mosque
School
Medical Dispensary
My house
N
100m. 0m. 100m. 200m. 300m.
Main road
Village road
Path
Family compound
High density housing area
Buildings
Trees
DJOLIBA
1962

Village map
my house and neighbors


Main road
Village road
Path
Family compound
High density housing area
Buildings
Trees
gardens
DJOLIBA
1962
Youth Bldg.
School
Mosque
Medical Dispensary
My house
N
0m
100m
200m
300m
100m

Village map

*project gardens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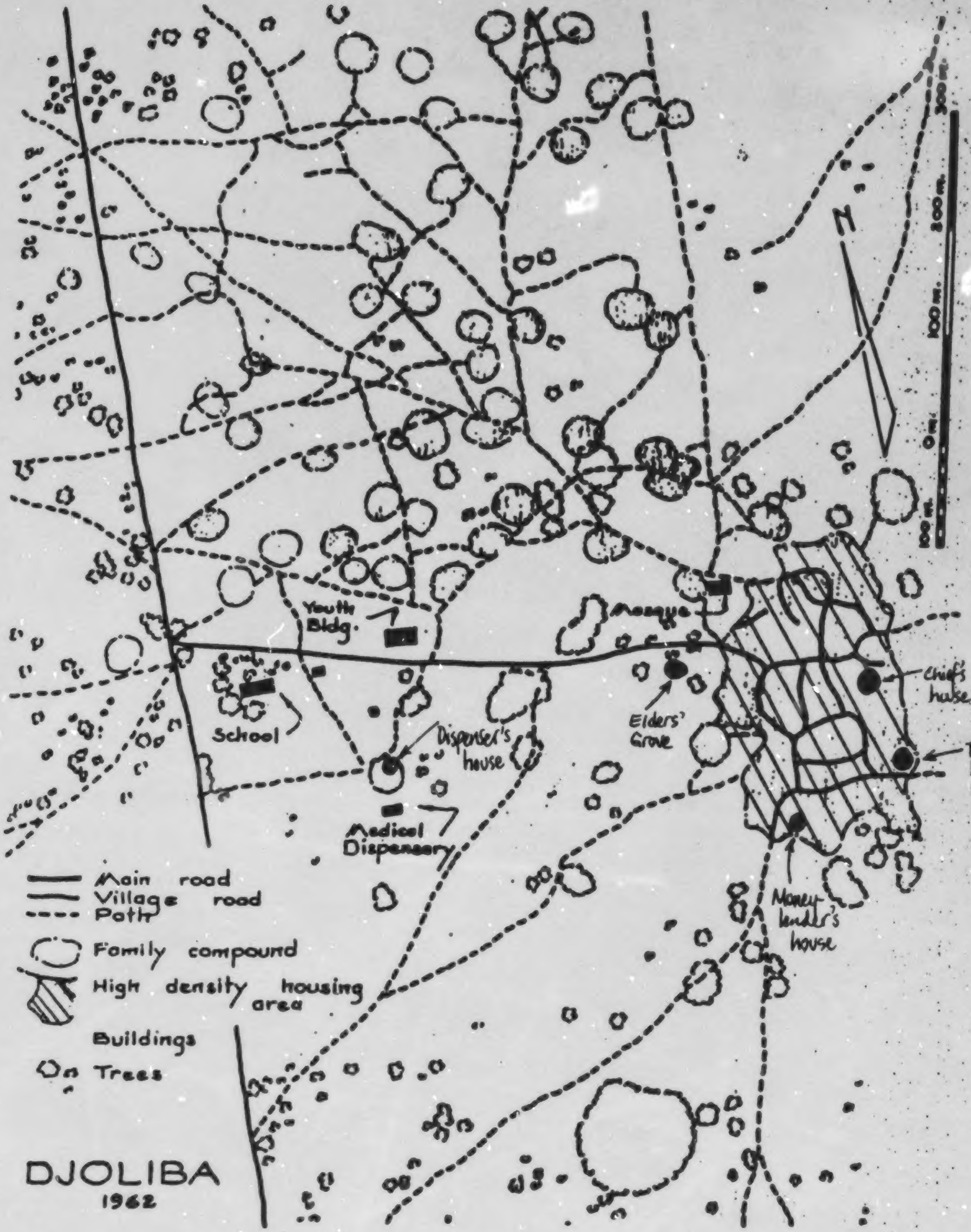
Youth Bldg.
Mosque
My house
School
Medical Dispensary
Main road
Village road
Path
Family compound
High density housing area
Buildings
Trees
Wells
DJOLIBA
1962

Village map

Wells


Youth Bldg.
Mosque
School
Dispenser's house
Medical Dispensary
Elders' Grove
Chief's house
Truck Driver's house
Money lender's house
N
100 m.
0 m.
100 m.
200 m.
300 m.
Main road
Village road
Path
Family compound
High density housing area
Buildings
Trees
DJOLIBA
1962

VILLAGE map
local leaders

TOOL

Community survey checklist:

I. Facts about the physical community

   A. Climate

      1. Rainfall patterns
      2. Frequency of drought, flooding
      3. Seasonal temperature ranges

   B. Water Sources

      1. Rivers and streams
      2. Swamps
      3. Catchment areas
      4. Water table
      5. Bathing areas
      6. Sources of drinking water
      7. Sources of food

   C. Housing and Roads

      1. Number and kind of houses
      2. Kinds and location of roads
      3. Number of bridges, etc.

   D. Vegetation

      1. Firewood
      2. Timber
      3. Plants
      4. Farm Crops

II. Facts about the people

   A. Population

      1. Number of people
      2. Age distribution
      3. Family size
      4. Number of families
      5. Density

   B. Settlement Pattern

      1. Are farm centrally located?
      2. Is the village spread out?
      3. Is there a center?
      4. What is the distance to farmers' farms?
      5. Who lives where?

C. Types of People, Ethnic Groups

1. Which groups exist in the community?
2. Which groups do what?
3. Who are group leaders?

D. Sanitation and Health Practices

E. Behavior and Norms

1. Awareness of problems and solutions
2. Receptivity to change
3. Interest in learning new ideas
4. Customs and practices

F. Sources of Income Outside of Agriculture

1. Civil Service
2. Retail or small businesses
3. Industry
4. Crafts

G. Local Leaders

1. Local authorities (head people)
2. Officials sent or appointed from the outside
3. Religious leaders
4. Traditional healers
5. School teachers
6. Extension workers
7. Club, group, union or cooperative leaders
8. Committees
9. Wealthy property owners
10. Opinion leaders among various groups

H. Education

1. Number of schools or nonformal learning processes
2. Kinds of schools
3. Number of students
4. Average level of education

"Agricultural Survey"

OVERVIEW

Farmers are the experts in all aspects of the local agricultural environment. Extension agents are often trained in a limited set of agricultural practices. Therefore, it is necessary for the agent to turn to farmers and other local residents with a vested interest in a community's involvement in agriculture to gain a broader perspective on the local environment and farming practices.

In particular, an extension worker needs to know which farmers practice the type of agriculture she herself is most familiar with. Beyond that, she can contact other ag workers in the area, buyers of farm produce, suppliers of commercial inputs, and local truckers, all of whom possess intimate knowledge of certain agricultural practices. Their combined assistance should help the agent develop a well rounded view of local conditions.

Part of the information they supply will further orient an extensionist geographically. She needs to know where farms, farmers, suppliers and marketers are located with reference to the road network and dominant topographical features. What she cannot find out from local sources or through observation may be available from various government map-making agencies. Relief maps, road maps and soil survey maps can all prove helpful in supplementing hand-drawn charts. The latter are often more useful, however, because of the local detail they contain Government sources can also be some use in orienting an agent to local climate and weather patterns. Weather stations offer specific data that may or may not be useful depending upon the closeness of the station to an extension site. Relief maps also give some indication of relative temperature. (In the tropics, for instance, average temperature will drop by 3-4°F, for every 1,000 ft. rise in altitude.)

The best source of local information is likely, once again, to be local farmers. The ILLUSTRATIONS and TOOLS sections on the next pages demonstrate how farmers can be historians of climate changes. In particular, discussions with local residents can give the extension agent some sense of the risks farmers face from storms and other weather harzards. One caution in relying on local sources for information on climate patterns is that terms used to refer to weather conditions are relative and it may take sometime before an outsider has a true feel for the conditions being described.

Climate and geography provide a backdrop for a consideration of more specific farming practices. An extensionist needs to identify specific crops and livestock operations underway in an area and more specifically focus on the different means of production and processing. Note that the objective of this aspect of information gathering is to describe actual practices of most of the farmers in a given area, not the feasibility of improvements. Some attention should also be paid to general levels of production and access to inputs and services. The sum of these collective inquiries will be a picture of the overall agricultural development in the village or community an extensionist serves.

While drawing this picture, an extension agent needs to try and develop an understanding of how all of a farmer's various agricultural pursuits fit together in an annual cycle. It is necessary to try and piece together bits of information to form calendars for weather, crop growing seasons, cyclical animal husbandry practices, social activities and other seasonal demands on a farmer's time and resources.

It will be useful after gathering some of the information above and becoming a bit more knowledgeable about farming in general to focus on the individual farm unit. It is at this point that the extension agent begins to become more actively involved in the analysis of the specific needs and resources farmers have. She looks at farm size and the farm family's labor resources, land tenure arrangements and land use management, the value of farm implements and the general extent of a farmer's debts. The way all of these individual factors add up will help determine what services she might be able to provide to a particular family. In the case of the small-scale farmer the Peace Corps serves, this individual attention and the level of understanding it promotes are necessary requirements for genuine communication to take place.

(The sequence of the TOOLS and ILLUSTRATIONS sections which follow has been reversed due to the fact that most of the points being illustrated are found in the survey tools themselves.)

TOOLS

Useful contacts for conducting an ag survey:

- Knowledgeable local farmers, specifically those farmers specializing in the same area as the extension agent.

- Ag workers stationed in the area.

- Buyers of farm produce.

- Suppliers of commercial inputs.

- Local truckers or boat operators.

Sources of maps:

- Georgraphic or geodetic service of the government: In most Latin American countries there is the military geographic service. This is normally the only source of relief maps.

- National resource inventory maps: These are useful for looking at the regional dispersal of resources, but are not much help in making a local inventory of resources.

- Road maps: Those secured from public works agencies will show greater detail than maps issued by other sources.

- Special sources: National or regional soil survey maps, regional development authorities, etc.

- Homemade maps: Most maps secured from official sources are not normally on a large enough scale to provide space for annotating such important local details as location of farms, secondary irrigation works, and unimproved roads and trails. Sections of official maps will have to be blown up by hand to secure the required scale.

Features to note on maps: (see overlay maps)

1. Location of topographical features
   - Altitude
   - Streams
   - Principal features (landmarks) recognized locally as reference points.
   - Farm and non-farm lands
   - Valleys

2. Communications (roads and trails)

   - o Distance between points
   - o Travel times and modes of travel between points
   - o Seasonal access

3. Demographic

   - o Location of communities
   - o Location of farmers
   - o Local names for communities

4. Infrastructure

   - o Irrigation systems, main and branch canals
   - o Drainage systems
   - o Stores where agricultural supplies are sold
   - o Schools
   - o Other

Climate and weather patterns checklist:

1. Precipitation

   - o Annual rainfall
   - o Month-by-month rainfall (snow) totals
   - o Geographic distribution of rainfall

2. Temperature

   - o Monthly averages
   - o Periods of extreme high or low temperatures
   - o Occurrence of first and last killing frost

3. Frequency and magnitude of wind and storms

   - o Wind velocity and seasonal variations
   - o Types (e.g. hail) and frequency of storms

4. Humidity

5. Sun exposure hours

Farming systems and practices inventory:

1. Identify the major crop operations within the area.

   For each:

   a. Indicate the growing season

      - o Normal growing season (dates)
      - o Normal variations in growing season (early-late)
      - o Make line bar graphs on a calendar to compare growing seasons for different crops. (See ILLUSTRATIONS)

b. Describe production practices

- o Describe the principal tillage praçtices and their earliest and latest dates of application.
- o For every practice indicate the following:
  - What the practice is called locally.
  - The specific input or inputs associated with the practice, and the amounts applied per local unit of land measurement.
  - The mode of application.
  - The time of application (see ILLUSTRATIONS)

c. Estimate yields and returns

- o Reported yields per unit of land.
- o Recent prices (at normal time of scale).
- o Multiply recent prices by approximate average yield; get approximate gross returns.
- o Substract approximate costs of production to get the estimate net returns.

2. Identify major livestock operations within the area. For each:

a. Indicate the source of feed supply: native pasture, cultivated forages, crop residues, homegrown grains, purchased feed, etc.

- o Indicate when pasture is available seasonally and how forage quality varies throughout the pasture season.
- o For other homegrown forages indicate the source and form in which used (also for purchased forages).
  - Cultivated forages: irrigated alfalfa, chopped green, native forage as hay; grain sorghum as silage; etc.
  - By-products: rice stubble, corn; stalks stored in bundles for dry season feeding; etc.

b. Describe production practices

- o Indicate the normal calendar of operations.
  - For feeding operations: the normal times of purchase and sale of animals.
  - For reproductive functions: normal times of calving, farrowing, and weaning.
  - Indicate when animals are on pasture and when they are confined.

- o For every specific practice indicate the following:
  - What the practice is called locally.
  - The specific input or inputs associated with the practice and the amounts applied per unit of land measurement.
  - The mode of application.
  - The time of application (age or development stage of the animal.)

c. Estimate yields and returns; record reported yields

- o Reproductive yields: number of calves weaned per cow, pigs per sow, etc; pounds of calf per cow, pigs per sow, etc.

- o Production
  - Milk production per cow: daily, monthly, per lacatation period.
  - Rate of gain, meat animals: pounds per day, per month, per pasture season, etc.
  - Feed conversion, meat animals: pounds of gain per pound of feed consumed, per pasture units occupied, etc.

- o Multiply current prices by the appropriate yield factor to get estimated gross return.

3. Indicate general levels of production (crops and livestock)

a. Estimate the percentage of production marketed.
b. Identify the principal local market outlets (buyers).
c. Seasonality of marketing and prices

- o Seasonal movement of the productive off the farmers: is it sold at harvest, some sold at harvest, some held for higher prices, etc.

- o Seasonal fluctuations of prices (average over several years if possible.

4. List the outside production inputs which are available locally. (Available means when needed.)

a. Agricultural supplies: by brands, grades and units prices.

- o Seed
- o Fertilizers
- o Insecticides
- o Fungcides
- o Nematocides
- o Herbicides
- o Rodenticides
- o Feeds

- Feed supplements
- Veterinary supplies
- Hand tools
- Hand operated equipment
- Other supplies

b. Agricultural machinery and equipment (if used).

- Tractors
  - Size (hp)
  - Make
- Equipment
  - Plows b. Planters
  - Cultivators
  - Sprayers
- Spare parts
- Other (e.g. irrigation systems)

c. Services

- Custom machinery services and rates charged: per hectare plowed, disked, planted, etc.
- Professional services (e.g. pest control): indicate whether public or private.

Useful calendars:

1. Make a generalized climate and weather calendar.

a. Normal distribution of rainfall (monthly).

- As related by farmers (dry, wet, some rain, wettest time, rainfall drops off, etc).
- Measured in millmeters, if you have access to meteorological data; your estimates if you do not have the exact data.

2. Make a calendar of agricultural activity.

a. For each of the major crop and livestock enterprises display the following:

- Length and possible range of growing season in the case of crops, and reproductive cycle or feeding period of livestock. (See example on the following page.)
- Indicate times for performing critical operations and relative labor requirements of those operations.

b. Given the total agricultural activity within the area, indicate the relative seasonal demand for the most critical inputs.

   1. Seasonal labor demand. (Indicate periods, if any, of movement of labor into or out of the area).
   2. Seasonal demand for other critical inputs.
   3. Make a calendar of key religious holidays and social events.
   4. Combine the above calendar to show the flow of a typical agricultural year as seen by a farmer. (See ILLUSTRATION).

Surveying individual farms:

1. Locate farms

   - The name of the location as it is shown locally.
   - With reference to the transportation network and population and trading centers.
   - With reference to primary and secondary irrigation or drainage systems.
   - With reference to schools and any other local institutions.
   - With reference to other farmers.

2. The nature of farm ownership

   a. If owned (or occupied), indicate whether the farm unit is occupied on the basis of:

      - Clear and registered title.
      - By understanding (custom).
      - By force of occupancy.
      - Other

   b. If rented, indicate rental cost, terms, and security of occupancy.

      - Cash rent: how much per local unit of land; when payable (before planting, after the crop); what penalties for non-payment; chance of renewal.
      - Payment in kind: how much product per land unit (hundred-weights/hectare, etc.); payable in the field or delivered to the landlord; what penalties for non-payment; chances of renewal.
      - Share-rent: percent of the produce; when delivered to landlord; costs of cash inputs shared between landlord and tenant; security of occupancy.

   c. If lands are held in common, as often is the case with pastures, qualify the rights an individual farmer has (e.g. unrestricted rights, rights to pasture ten cows, twenty ewes, etc.)

3. Description of land occupied by a farm:

   a. Total farm size: measured in local land units (hectares, manzanas, cuadra, tareas, etc.)

   b. Location of landholdings

      - o If the farm is not composed of a single unit indicate the number and size of its separate parts.

      - o Indicate location of landholdings with reference to the farmer's house.

   c. Actual land use

      - o Percentage of land in cultivated crops

        - Irrigated
        - Non-Irrigated
        - Intensive
        - Perennial

      - o Percentage of land in pasture
      - o Percentage of land in woods
      - o Percentage of fallow or marginal land

   d. Characteristics of the soil or soils which are found on the farm unit.

      - o Local name of soil type
      - o Color
      - o Texture
      - o Drainage
      - o Slope
      - o Depth
      - o Tilth
      - o Classification by local use (____________ soil type is considered by local farmers to be ideal for growing ______________, good for growing ___________, and poor for growing ____________).

   e. Other attributes associated with the land

      - o Location of water on or near the farm

        - Surface water
        - Sub-surface water

      - o Ease of access to field
      - o Drainage patterns; for lands bordering streams, frequency, severity, and duration of flooding.

4. Description of farm improvements and conditions.

a. Living quarters: the farm family home, or in the case of absentee owner, the renter's or the workers' quarters.

b. Improvements to the land

- Irrigation systems

  Indicate what kind of system (canal, well, spring, stream-pump, overhead sprinkler, etc.) and the source of water (stream, primary canal, spring, pond or lake, or sub-surface).

- Drainage systems
- Terraces
- Field access roads
- Wells (for domestic or animal water supply).

c. Buildings other than housing

- Livestock shelters
- Livestock holding pens
- Storage facilities
- General purpose facilities
- Others

d. Fencing

Is the entire farm unit fenced? Are some fields fenced and others not? What is the purpose of fencing (defensive, protection against other animals, management, better distribution of animals on pastures)? What kind of fences (barbed wire, stone, brush, etc.)?

5. Describe the farm enterprises on representative farms

a. Indicate the relative importance of each enterprise to the farm business.

- In terms of land use
- In terms of subsistence
- In terms of cash sales

b. Indicate how enterprises complement and supplement each other, or are joint enterprises.

- Complementary: Two or more enterprises occupy the same field and/or the same labor force, and yield a greater combined return then they would singly.

- Joint enterprise: Normally feed production paired with livestock production.

c. Indicate what crop rotations are followed, if any.

6. Describe production practices.

7. Account for the farm labor supply.

   a. Permanent labor force

      - The farm family.

        Indicate the age and sex composition of the average farm family, and the extent to which famuily members contribute work to the farm enterprises.

      - Permanent hired labor.

        Indicate their wages or other forms of compensation and whether or not they support a family.

   b. Occasional hired labor

      Indicate work performed (weeding, harvest, etc.) and time and duration of their stay.

   c. Exchange of labor

      Labor is often exchanged among family, friends and neighbors. Indicate how these exchanges are made and for what operations.

8. Describe the annual agricultural cycle as seen by the farmer:

   a. Indicate the farm operations the farmer focusses on in a given month or season.

   b. List specific decisions the farmer faces during each period.

   c. Outline other specific seasonal concerns that capture the farmer's attention.

   d. Note the farmer's long range concerns. (See ILLUSTRATIONS)

Calculating net return on ag inputs:

Crops

1. Estimate gross return:

Sale of 1,800 lbs. of beans at 7¢ per lb.	$126.00/Hectare (Ha)

44

2. Estimate costs of production:

Hired labor:

Used of oxen	$12.00	
Weeding	10.00	
Harvest	8.00	
	$30.00	$30.00/Ha

Purchased inputs:

Seed	$ 6.00	
Fertilizer	35.00	
	$41.00	$41.00/Ha

3. Total production costs/Ha $71.00/Ha

4. Substract total costs from estimated returns to get net returns

Estimated returns	$126.00/Ha
Total costs	-71.00/Ha
Net returns	$ 55.00/Ha

Livestock

- Production 10 liter of milk per day x 10¢/liter = gross return of $1.00 per cow per day. Lactation period of 200 days x $1.00 = gross return per cow of $200 per year.

- 900 lb. steer sold for 16¢/lb. = gross return of $144.00.

- Market hog sold at 200 lbs. at 21¢/lb - gross return of $42.60. Estimated value of feed consumed, $24.00. Gross feeding return, $18.00.

ILLUSTRATIONS

See "Community Survey", ILLUSTRATIONS.

ILLUSTRATION

A farmer's history of climate changes:

YEAR	OBSERVATIONS: CONDITION OF CROP	EXPLANATION
1970	Corn was normal; beans were a disaster.	Unusually heavy August rains made it impossible to harvest early season beans.
1969	A good all around crop year.	"Dios lo quize." (Thank God)
1968	An excellent year except for the valley farmers.	Unusually heavy precipitation over a one week period in late June resulted in flash floods.
1967	All yields reduced.	An unusually dry year all the way through.
1966	A reasonably good year for all crops.	
1965	Early crops were excellent. Later crops didn't pay their way.	June and July rains were normal. Drought conditions existed the remainder of the season.
1964 to 1961	Etc.	Etc

ILLUSTRATION

Examples from field notebooks of notations on specific farming practices:

From Bean Production:

Practice	Specific Inputs	Mode of Application	Time of Application
(1) Plowing (tillage practices)	Oxen power.	Use of Spanish plow, 2 to 3 passes	Immediately after first rain.
(2) Seeding	Local seed, 2 boxes/manzana (approximately 50#/manzana), 3 man days of labor	Planted with *alespeque* (*digging stick*) in hills approximately 12" apart, 3-4 seeds/hill.	Immediately after plowing as weather permits.

From Beef Production (Cow and Calf Operation)

Practice	Specific Inputs	Mode of Application	Time of Application
Vaccination for blackleg, *pierna negra*.	Vaccine.	Veterinarian provides service.	Any time between ages 6 & 12 years of age.
Supplemental feeding of cows in dry season.	Molasses, 3-5#/day. Cottonseed meal, 1#/day.	Molasses, feed free choice from pasture tanks; cottonseed meal rationed 2# every 2 days.	January through April (the dry season)

From Swine Production

Worming	Piperazine.	In water.	After weaning & repear in 3 months.
Supplemental feeding	Purchase supplement, 40% protein.	Mix with grain at ratio of 1 to 4.	From weaning to 100 lbs. Change ratio to 1 to 5 at 100 lbs.

From Milk Production

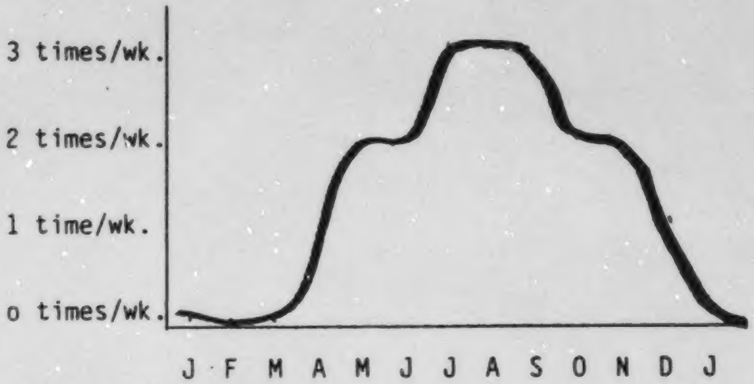
Milking	Hand milking	Cow tied in corral with calf tied to hind leg. Calf allowed to strip cow.	Once a day.
Mastitis control.	Antibiotics. (indiscriminate use.)	Farmer applies impirically according to directions on the vial.	When symptoms are severe.

ILLUSTRATION

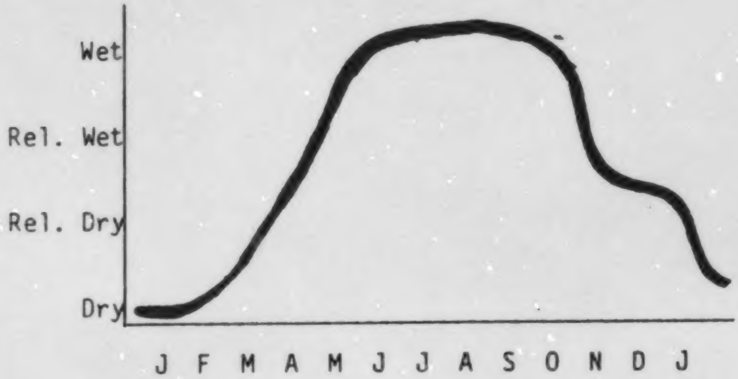
Annual rainfall graphs:

> The following kinds of graphs were obtained by putting questions to farmers about rainfall in two different ways. The first is based on questions about frequency of rainfall; the second on questions about the relative amounts of rain during the growing season.

Precipitation Graph, Using Frequency of Rainfall as the Measure of Seasonal Rainfall Distribution.



Rainfall Graph, Using a dry to Wet Scale to Measure Seasonal Rainfall Distribution.

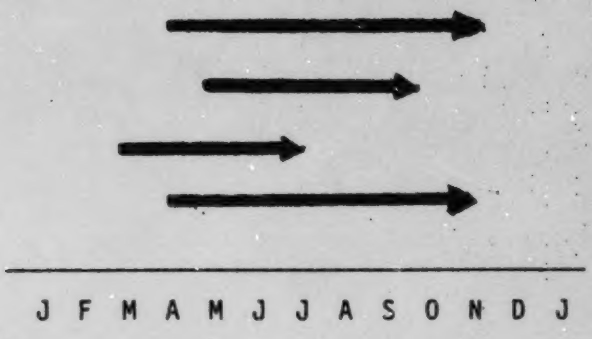


ILLUSTRATION

Crop Calendar:

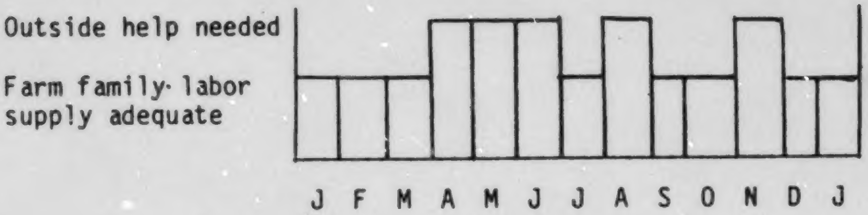
Crops and cycles in a local community.

1. Corn, long cycle
2. Rice, Dry-land
3. Beans
4. Corn, long cycle



Peak labor demands:

Distribution of Work and Timing of Principal Farming Operations



CORN

1. Clearing
2. Land preparation
3. Principal seeding
4. Weeding
5. Harvest

ILLUSTRATION

Annual agricultural cycle as perceived by a small scale cattle farmer in El Salvador:

TIME OF YEAR & NORMAL OPERATIONS	DECISIONS	PREOCCUPATIONS
December - January The pasture season ends. Herds are normally reduced through sale of mature animals which are culled from the herd, and sale of young stock not required as herd replacements.	How many animals can be carried through the dry season? which animal should be sold? How many cows can be kept in milk production through the dry season? How far will dry pastures and sorghum forage stretch into the dry season? How much feed should be purchased if any? Which heifers and heifer claves should be retained as herd replacements?	Keeping the herd intact: after culling will he have enough cows in production the following pasture season? Will he make a good sale on his cull cows and feeder calves? (How can he locate that buyer from Guatemala who offered such a good price last year?) Will sales cover his debts that are fallying due? Can he get feed on credit?
January - May The dry season. Pastures dry up in January and do not revive until early June. (Rains normally start in late May.) During the dry season the higher producing cows are kept in milk production and fed the better quality dry roughage, and in many cases purchased feed supplements. Replacement cattle are fed the lower quality feed or left to survive on dry pastures.	Dividing the scarce feed supply between cows in production, dry cows, replacement stock, and calves. Purchasing molasses, cottonseed meal, rice bran and cottonseed hulls as supplementary feeds. Where and how to purchase supplemental feed.	Will the supply of farm grown forages hold out? Will he be forced to sell some animals (deplete the herd) before the pasture season arrives? Can feed be purchased on credit? How to reduce the cost of purchased feed? Will additional milk sales cover the costs of purchased feed?

TIME OF YEAR & NORMAL OPERATIONS	DECISIONS	PREOCCUPATIONS
April - May The time to make decisions as to how the herd will be managed through the ocming pastue season. The time to build or repair fences and corrals.	Equating herd size with potential feed supply. Deciding whether or not to purchase animals. Deciding which bull to run with the herd. Deciding which pastures to renovate and whether to do it with hired labor or with a corn-sorghum cropper.	Is there enough help for the pasture season? Will the old reliable milker stay on or will he move to another farm? Should he try one of the new grasses? Should he try some fertilizer on pastures? Where to borrow some money to sustain the family and the hired men though the months of April and May?
June - December The pasture season. All animals are on pasture. Most cows freshen (calve) in the months of June, July and August. The maximum number of cows are in milk production and peak per cow production is reached in the months of August-October. Animals are vaccinated at this time (if at all). Pastures due to be renovated are plowed up nd put into a catch crop of corn and sorghum.	Division of the herd into grazing units. Once-a-day or twice a day milking. How much milk for the pail and how much for the calves? Whether or not to vaccinate and for what diseases? Breeding: turn bull or bulls loose or breed selectively? Feed conservation for the coming dry season: set aside dry season pasture; make hay or silage; sorghum stover? Care of sick or injured animals.	Are price prospects good for cheese or fluid milk? Other animals breaking into the pastures. Potential theft of animals in isolated pastures. Freshening dates of cows (keeping them in cycle). Producing a surplus of feed to carry into the dry season. Getting good gains on the calves for later sale as feeders.
Year to Year Long Range Considerations	Whether to emphasize beef or dairy production. Whether to sell milk while or as cheese. How to increase feed supply, especially for the dry season. Whether or not to invest in more land, farm improvements, a new bull, etc. What breed to use?	What is the future of the farm? Which of the children will stay on the farm? Should I try new practices? How to reduce debts? Is the investment in fertilizer use, an irrigation pump, new fencing, etc. worth the risks of incurring additional debts? How can I enjoy life (work less)? Should I join the cattleman's association.

ILLUSTRATION

Complementarity of farming operations:

Beans following corn: When early season corn is near maturity beans, (climbing variety) are sown in the corn fields. Corn stalks provide support for beans.

Sorghum interplanted in corn: Local varieties of sorghum are sown between rows hen corn is knee high, sorghum continues to grow after corn matures, even under adverse soil moisture conditions.

Sweet potatoes - swine: Sweet potatoes grown for cash market, tops of plants provide green feed for hogs.

Alfalfa production - milk production: Alfalfa cut at six week intervals are fed to cows.

Grain production - poultry or swine production.

A calendar of major religious festivals and holidays in a small village:

	J	F	M	A	M	J	J	A	S	O	N	D
Christian				Easter (April 9)								
Muslim						Ramadan (May 10-June 20)						
Traditional/ National		Ancestors' Day (February 20)					Independence Day (July 20)		Harvest Day (September 30)			Boxing Day (Decmeber 20)

"Needs and Resources Survey"

OVERVIEW

The needs a community (or individual farmer) identifies for itself are the needs it will work hardest to fill. Community and agricultural surveys help extension workers begin to understand what local needs exist. A needs and resources survey is the next stage of information gathering. It is directed at helping a community isolate and articulate its problems and consider various solutions.

Gathering accurate information about needs requires skillful interviewing techniques. Questions about shortages of various commodities or the absence of particular services can easily become leading questions, especially when the information source has reason to believe that the extension worker has the capacity to solve the problem. For that reason, it is often more useful to conduct a needs survey through an indirect line of questioning. Focussing attention on the amount of time allotted to specific household and farm chores is likely to prove a more useful indicator of needs for labor-saving devices than a straight yes-or-no poll would be. Finding out what supplies people must travel to purchase or what services are sought outside the community will provide a better insight into local needs than simply asking people if they feel a health clinic, for example, should be built in town. (See ILLUSTRATIONS.)

It is important that an extension agent be familiar with the resources that are available to a community. To acquaint herself with local solutions to problems, the agent needs to consult villagers themselves first. There are many resources and ways of doing things that an outsider will not know. In this respect, the extensionist is still a learner. There may also be resources inside and outside the community that the agent can recommend in some situations. It is essential, though, that she understand first how the community views its own situation.

There may be good reasons why some of the solutions that might naturally be recommended would be inappropriate for a local situation. For example, an extension agent might suggest to a farmer who wants to expand his farming operation to take better advantage of the natural resource that exists in a particular tract of land by planting a citrus plantation there. The owner may, however, resist the advice because the land use arrangement on that piece of land does not allow for such long-range development. Thus, the land in question is not an available resource for the type of production the extension agent is advocating, even though at first glance it seems the best resource for meeting the farmer's needs.

Specific types of resources are described in detail in Peace Corps' Resources for Development manual, which is available through the Office of Information Collection and Exchange (ICE) in Washington. Briefly, they include human, informational, natural, material, technical and financial resources. Human resources include, among others, the organizational skills of local leaders, the manual skills of craftspersons, the vast experience of the elderly, and the physical strength of youth. Informational resources are found in printed form in research and educational institutions, and oral form through well-travelled individuals, and in other visual and aural (e.g. radio) media as well. Natural resources include everything occurring in the geographical environment, from mineral ores and trees to wildlife and sunlight. Material resources are manufactured items like tools, mats, rope, and nets. Technical resources are processes known and used locally to accomplish tasks (i.e. local technologies). And financial resources include both local contributions and access to loans and grants, self-help funds and donations. All of these different resources and many others have a direct bearing on how a community meets its development needs. Accordingly, community resources require an extension worker's specific attention.

ILLUSTRATION

Using indirect lines of questioning to gather information about a community's needs and resources:

Whenever extension agent A hears from one of his neighbors that they are going to go or have just returned from out of town he asks where they went and what they did. Later, he notes the response in his work journal. Shortly, before the onset of the rains, the extension agent notices that several of his acquaintances have either made personal trips or sent another person in their stead to neighboring villagers to buy seed for the upcoming planting season. He wonders if other people in the village also buy their seed outside of town.

To follow up on his initial bit of information, the volunteer does several things. He begins to systematically ask every farmer he knows how they get their seed. He asks farmers who travel outside of town to procure seed where they get their seed, how long it takes to travel there, who they buy from and how much the seed costs. He then travels with some of his neighbors to the villages where most people buy seed and talks with farmers who are doing the selling. He asks these farmers to show him how they store their grain from one planting season to the next. The extension agent also visits the storerooms of the farmers in the village where he lives. He asks these local farmers what varieties of seed they have on hand and how they avoid the extensive pest damages other farmers have complained about. Gradually, the extension agent develops a more complete picture of the needs of local farmers for a less expensive and more accessible seed supply and the resources available inside the village he lives in - e.g. storage technologies and seed varieties - for filling these needs.

TOOLS

A partial resource inventory checklist:

I. Human Resources

A. Craftspersons

1. Blacksmiths
2. Carpenters
3. Weavers
4. Mechanics
5. Masons
6. Basket makers
7. Rope makers
8. Potters
9. Etc.

B. Specialists

1. Midwives
2. Herbalists
3. Fisherman
4. Hunters
5. Drivers

C. Work Companies

II. Informational resources

A. Media

1. Books
2. Reports
3. Films
4. Records
5. Radio

B. Sources

1. Local governmental agencies
2. Research stations
3. Development organizations

III. Natural Resources

A. Building materials

1. Sand
2. Stone
3. Native cement (mud and anthills)
4. Cerass/palm thatch
5. Lumber
6. Bamboo

7. Raffia
8. Vines for rope
9. Bush poles
10. Banana trees, leaves

B. Other (see "Agricultural Survey" and "Community Survey" TOOLS sections.

IV. Material Resources (manufactured goods)

A. Externally made

1. Construction supplies (nails, etc.)
2. Tools

B. Locally made

1. Rope
2. Mats
3. Nets
4. Tools

V. Technical Resources (local technologies)

VI. Financial Resources

A. Local fund-faising efforts (e.g. dances, fiestas, etc.)
B. Money lenders
C. Cooperatives
D. Self-help funds
E. Wealthy donators
F. Outside development agencies

NOTE: The Resources For Development manual published by ICE includes extensive lists of government and private resources that may be useful in a given village situation.

"Recordkeeping and Planning"

OVERVIEW

Extension agents do their farmer clients a great disservice when they fail to keep adequate records of their work. Development efforts overlap, mistakes are repeated and useful insights and expertise are lost when the daily affairs of an extension station are not recorded.

Documenting extension work in an area serves several purposes simultaneously. It helps the extension agent organize his own work. It allows the agent to more closely monitor the needs of individual farmers. It sets up an information bank for use by the community at large. And it aids development agencies such as the Peace Corps and ministries of agriculture in evaluating and learning from past extension efforts. Ongoing extension services can also be conducted with a greater degree of continuity.

The recording of information proceeds in stages. Initially, information is recorded in narrative form, and the purpose of writing things down is to simply help remember them at another time. After sufficient raw information has been gathered, a more systematic ordering of information can take place. Practical lists and information summaries emerge -- farmers who have already purchased grade cattle, places where tools can be bought at the least inexpensive price, tasks to be accomplished in the upcoming month -- which help the extension agent use the research he has done in planning his work.

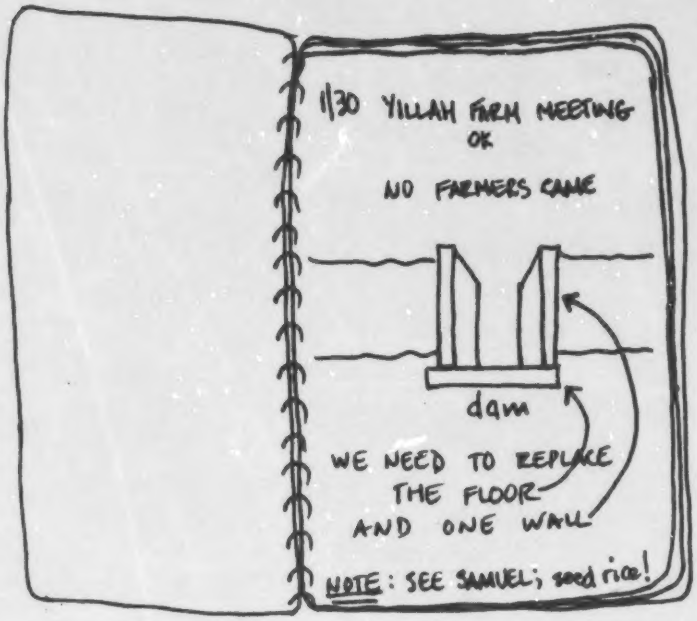
Planning takes place when the extension agent sits down with farmers, village leaders, counterparts and ministry and project officials to try and determine ways in which the needs of a community can be linked with appropriate resources to solve problems. Problems are prioritized and various alternatives for solutions are considered. Decisions are made as to who will take responsibility for what tasks, and how and when the tasks will be completed. Chapter Six includes a further discussion of planning as a management skill. The point to be made here is that planning proceeds directly out of a lengthy information gathering and recording process designed to maximize the amount of local input into decisions affecting local people.

The format for recording information so that it can be readily used in planning depends in part upon the work style of the extension worker himself, in part upon the type of information being recorded, and in part upon the need to keep information accessible to the people who will eventually use it. A pocket-size field notebook can be used for jotting down brief entries on farm visits. A work log or diary expands upon notes from the field to provide a history of work in a particular station. Charts, graphs and timelines can be efficient means of preserving large bodies of factual data. Inventory sheets and financial accounts are essential to the effective management of storage facilities. Periodic formal reports extend information from a local station to a more centralized headquarters and constitute a key link in the two-way communication chain. Finally, maps and diagrams can be used to represent information in visual form. All of these formats can aid the planning process at different stages.

ILLUSTRATION

A comparison of recordkeeping formats used in an irrigated rice extension program:

Field Notebook:



1/30 YILLAH FARM MEETING
OK

NO FARMERS CAME

dam

WE NEED TO REPLACE
THE FLOOR
AND ONE WALL

NOTE: SEE SAMUEL; seed rice!

ILLUSTRATION

Work Log:

" 1/30 Went to the town assembly leader early a.m. to ask about the farmer meeting in Yillah swamp. He said it would still take place. No one showed, but I did a rough sketch of the dam we want to repair.

Went to Sanga swamp with Samuel. Saw the area Foday Sanusie wants to develop this dry season. About 2/3 of an acre. Requires a new biforcation of the irrigation ditch. Ditch needed to be cleared and widened before biforcation will be possible. Appears to be some problem with iron toxic soil. Advised farmers to burn rice straw rather than plow it under. Promised Foday I would come survey for him as soon as my equipment was available.

Visited Brimah Kaaha's section of the swamp. He is the first to plant his dry season crop; his plots are unlevel, iron toxic; no water on higher plots; bad weeds and brown spot throughout. Samuel informed me that Brimah is spending a great deal of time working in his banana plantation these days."

ILLUSTRATION

Annual Report (year's end; excerpts from recommendations for upcoming planting season):

SANGA SWAMP:

1. Widen and deepen drain all the way down.
2. Widen and deepen irrigation ditches all the way down.
3. Consider dividing larger plots into smaller, better levelled sections to improve weed control.
4. Survey, peg and construct new upland vegetable plots.
5. Repair leaks in main drain head gate.
6. Continue promoting vegetable, tree crops and upland rice cultivation near the swamp.

YILLAH SWAMP:

1. Repair sluice gate and raise head bank.
2. Investigate the possibility of working with head farmers on demonstration plots for nursing and transplanting techniques.
3. Repair bush path crossing the swamp on one of the interior bunds.

(The exerpts from the Field Notebook, Work Log and Annual Report are included to show how information is first gathered and recorded in narrative form and later re-combined in a more useful format. The Annual Report serves simultaneously to help the extension agent organize his plans for the upcoming planting season and to inform the ministry's program officers of the progress made and problems faced in the agent's site.)

ILLUSTRATION

Case study of usefulness of records in maintaining continuity from one extension worker to the next:

Maria arrived at her Peace Corps placement after the volunteer who preceded her had already left the country to return home. She found waiting for her a stack of papers and notebooks with a hand written note from her predecessor welcoming her and describing what types of information the various records contained.

Over the course of the next several weeks, Maria found many uses for these documents. First, there were maps of the community that helped her find her way around. One that was particularly useful marked the locations of the houses of the most significant community officials, farm cooperative leaders and demonstration farmers. Second, there is a chart of the Ministry of Agriculture hierarchy extending from her field assistants to her district supervisor that helped her remember people's names and responsibilities. Third, she found a record of the rental agreement established between the landlord who owned the town's ag storage facility and the Ministry that paid the rent. Fourth, her predecessor had kept a daily work log which gave Maria an idea of what farmers might expect of her based on their previous experience with Peace Corps extension agents. Fifth, there was a set of recommendations for ongoing work in the station that detailed some of the difficulties one group of farmers had experienced the previous year. Finally, there was a list of all the project farmers' names including a full accounting of their loan obligations to the Ministry store.

The chief value of the records from Maria's perspective was that they saved her from duplicating hours of time and energy in gathering information about her site. The value of the records to farmers lay in the way they influenced Maria to go about her work with an eye towards maintaining some continuity with what had gone before.

TOOL

Suggested format for recording a farm visit:

Date: Farmer's name:

Location of farm:

Purpose of visit:

Present situation:

Recommendations:

Commitments (by farmer or agent) for follow-up:

TOOL

Partial list of recordkeeping formats for field stations:

- Field notebook (pocket size)
- Work log or diary (narrative)
- Charts
- Graphs
- Timelines
- Maps and diagrams
- Inventory sheets (for storage)
- Financial records (facilities)
- Copies of reports to Ministry and project supervisors
- Copies of official correspondence

A caution: Records are kept for a purpose; it is important that this purpose remain clear so that valuable time is not lost that could be devoted to other tasks, and recordkeeping is not misunderstood.

For other TOOLS pertaining more directly to planning, see Chapter Six.

PROVIDING AG SUPPORT SERVICES

PROVIDING AGRICULTURAL SUPPORT SERVICES DIRECTLY AND INDIRECTLY

INTRODUCTION

Once initial research tasks have been accomplished and research itself is well-established as an ongoing process, an extensionist may turn her attention to matching the needs of farm families with available resources. This match begins to break the circle of exclusion which so often leaves out small-scale farmers. In transition from a subsistence farming tradition to greater involvement with outside influences, such farmers are not familiar with new resources. Furthermore, in many developing countries agricultural products and services are not readily available except through government ministries and development projects. Because the gap between farmers in transition and sparse support services is great, matching needs to resources can be very difficult.

Direct support is a vital service provided by extensionists in developing countries. In self-contained subsistence farm systems farmers meet almost all of their limited needs locally. As farmers emerge from subsistence farming to market or intensive-production agriculture, their needs change. Support becomes vital. This need is felt more strongly in situations where the more recent farm tradition includes a colonial legacy. Colonial extension services at one time provided outside resources and services in exchange for cash crop yields. Therefore the need for more outside support is compounded by an expectation that it will be provided as a matter of course.

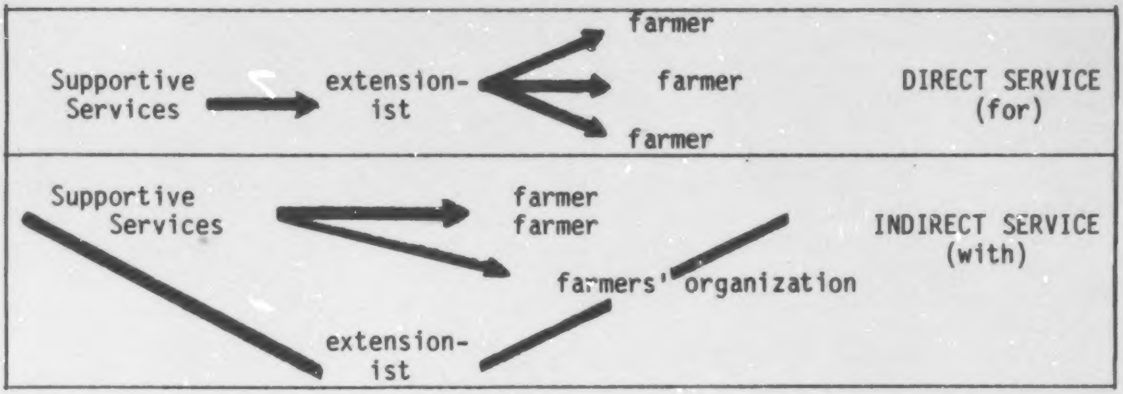
Agricultural support services which most farmers need in developing countries are listed below. Each subchapter of this chapter describes a service and gives the reader tools for providing it to small-scale farmers.

AGRICULTURAL SUPPORT SERVICES
(DIRECT)

- Testing Recommendations
- Administering Credit
- Selecting and producing seed
- Providing Inputs
- Surveying Agricultural Lands
- Providing Storage Facilities
- Marketing Products

For the extensionist, the direct provision of support services produces three benefits. First, providing a specific and practical service (surveying a swamp, distributing seed, building and using a farrowing crate) is an excellent credibility technique. It enables the extension worker to demonstrate her skill and competence and cultivate trust and rapport with farmers. Secondly, direct service brings research, technology and outside resources directly to the aid of small-scale farmers. The circle of exclusion is broken and farmers can choose among these new resources. Finally, the services themselves are subject to farmer feedback and informal local testing as farmers use them. This in turn affects research and the development of agricultural practices or products, completing the process of two-way communication.

In developing countries, agricultural support can be very difficult to provide. Products such as seed, manure, feed, fertilizers, tools or equipment are often in very short supply and are not locally produced. The infrastructure which produces, distributes and maintains these inputs is also limited in developing countries. The newness of communication and transportation systems upon which extension workers and information-sharing depend imposes severe limits as well. Therefore, the ability to effectively identify, procure and deliver support resources to village farmers is a considerable skill.


Supportive Services
extension-ist
farmer
farmer
farmer
DIRECT SERVICE (for)
Supportive Services
farmer
farmer
farmers' organization
extension-ist
INDIRECT SERVICE (with)

As if the provision of services in this context were not difficult enough, it is encumbant upon Peace Corps extensionists to move beyond direct service to providing indirect support services.

AGRICULTURAL SUPPORT SERVICES
(INDIRECT)

- Working With Individual Farmers
- Working With Counterparts
- Working With Groups
- Working With Cooperatives
- Working With Local Authorities, Government or Development Agencies

Indirect service is often called facilitating, or helping someone do something for himself. The emphasis in direct services is working FOR farmers. The emphasis in indirect services is working WITH them.

The difference between direct and indirect service may be illustrated by the following examples:

Direct (FOR)	Indirect (WITH)
1. Surveying accurate contours to lay out a rice paddy plots on a hillside for a participating farmer, using a transit level and stakes.	1. Showing a participating farmer how to measure contours roughly by using "water-levelling", a process of flooding a rice plot until the water level indicates the contour of an equal elevation on a hillside.
2. Demonstrating to 'participating' farmers how to conduct and properly use a farrowing crate to ensure safety of new piglets.	2. Training a master farmer and a host country ag technician (a) to build and use a farrowing create and, (b) to set up and deliver a method demonstration which shows other farmers what a crate is, how it is built and used, and why it can help small-scale pig farmers.
3. Writing a proposal, procuring vegetable seed and shovels, and transporting them to a village ag project site.	3. Going through a long-term process of helping a group of farmers (a) raise, harvest, dry and store their own vegetable seed, (b) invest a portion of their vegetable crop profit in seed, (c) invest a portion of their profit in shovels, and (d) convince a farmer who runs a local truck service to deliver the shovels to the village.

By comparing direct and indirect service in each example, four general tendencies emerge:

HELPER'S ROLE 1. The active role changes hands from the extensionist performing a service to the extensionist helping local people provide a service.

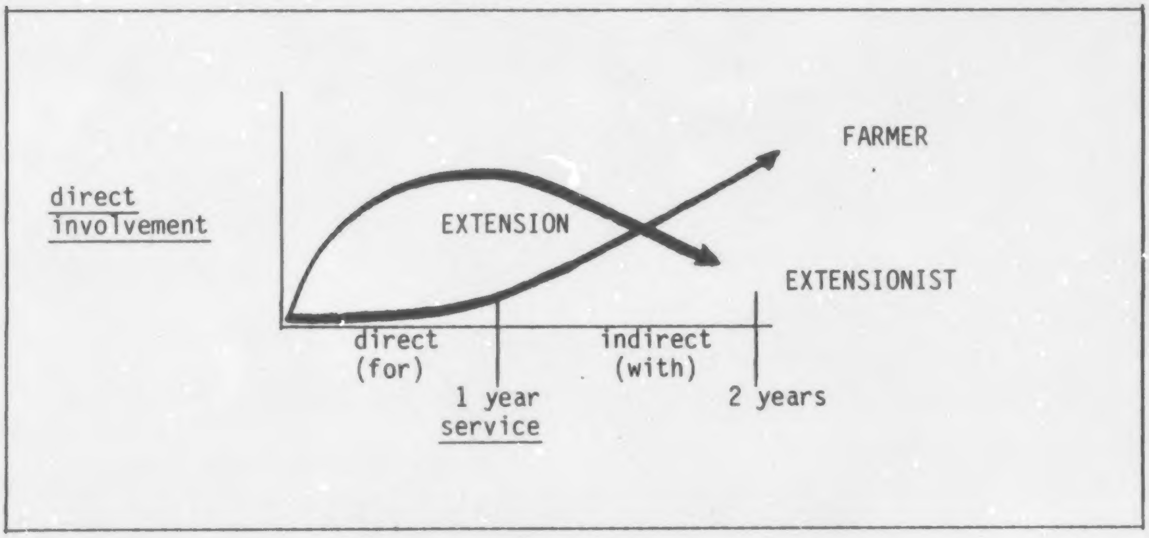
DEPENDENCE 2. Provision of the service depends first on the extensionist, but then the dependence shifts to local people.

RESOURCES 3. There is a change from an outside resource to local resources for meeting the need.

TIME 4. There is a change from an immediate, technically-precise and straightforward solution to a longer-term, step-by-step, more complex solution involving more people.

Direct service is entirely appropriate when arousing interest, gaining credibility, solving an immediate pressing problem or especially when avoiding a disaster or catastrophe. Indirect service takes much longer, involves training others, employs local resources more, provides for wider community involvement, and shifts dependence from the extensionist to local community people.

The extensionist is a catalyst of change who enhances rather than diminishes the COMPETENT AUTONOMY of farmers. Dependence on uncontrollable outside resources can be as limiting a situation as the subsistence system which does not respond to change. An extensionist helps farmers meet their most immediate needs. Then she helps them address a deeper need, the need to participate in and control change. By facilitating support among farmers and available resources, the extensionist begins to capacitate farmers, making them interdependent with a widening circle of these resources.



DIRECT SERVICES

"Testing Recommendations"

OVERVIEW

As the middle link in the Research-Extension-Farming chain, it is the extension agent's responsibility to make sure recommendations to farmers are relevent, benefical and appropriate. Given the gap between researchers and small-scale farmers in most developing countries, recommendations often must be tested in the field by extensionists.

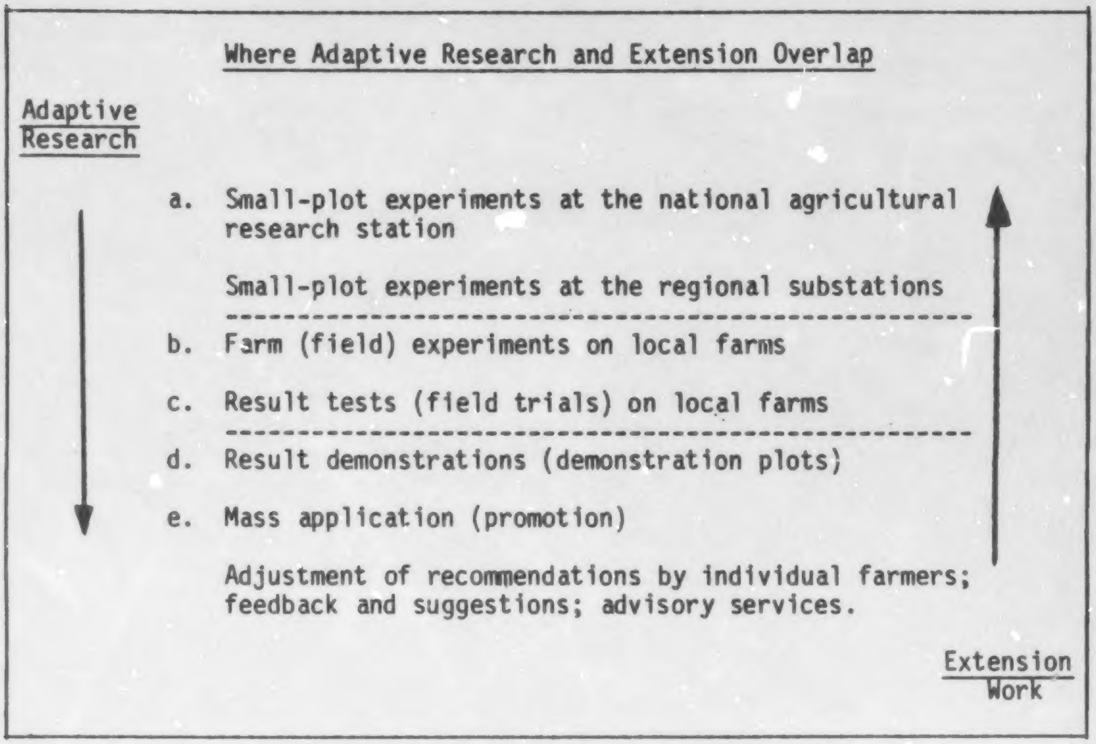
Why is it necessary to test at all? First of all, agriculture is an extremely location- and time-specific endeavor. There are too many major variables in agricultural situations to consider specific practices to be universally applicable. For example, a certain type of maize may be well suited to early rainy season cultivation in one area of Honduras while 100 miles away the local climate, soil characteristics and pest problems may make it a poor choice. Therefore, even practices developed by researchers for one region cannot be described as clearly suited to other local settings until they are tested thoroughly.

There are other reasons why recommendations must be tested: The extensionist herself must have confidence in a practice she is to recommend, so she must see herself the results of its use. This is also true for farmers. Unless a farmer sees a practice work well in his own locale, or hears that it works well from a reliable source, caution holds him back from employing the practice. Lastly, local testing of recommendations helps arouse farmer interest in new practices and enables farmers themselves to take part in the process of testing and formulating new practices.

In Chapter One, there is an outline of the steps in the Research-Extension-Farmining chain. They can be summarized as follows:

1. Pure research
2. Basic research
3. Applied research
4. Adaptive research
5. Extension work
6. Farmer use and feedback

Testing recommendations in the field involves a combination of the adaptive research (4) and extension work (5) steps. In developing countries especially, these steps overlap and most often are handled by the extensionist herself. The extensionist plays a dual role (field research/extensionist). Because they rarely have the scientific training to do research without assistance, however, extensionists are urged to conduct tests in collaboration with local or regional research stations and staff. It is absolutely essential that all testing be done within the context of the knowledge, experience and interests of local farmers who are the most important experts in local situations.



Where Adaptive Research and Extension Overlap

Adaptive Research

a. Small-plot experiments at the national agricultural research station

Small-plot experiments at the regional substations

b. Farm (field) experiments on local farms

c. Result tests (field trials) on local farms

d. Result demonstrations (demonstration plots)

e. Mass application (promotion)

Adjustment of recommendations by individual farmers; feedback and suggestions; advisory services.

Extension Work

A Closer Look at Adaptive Research: How Yield Improving Practices are Tailored to Local Conditions

a. Small-plot experiments: These should be conducted at both the national station and the regional sub-stations and are designed to test promising leads gained from applied research. In the case of most developing countries, this applied research may well have taken place in another country. The small plot experiments point out the more promising of these leads which may again be subjected to further small plot tests. An example would be the testing of a number of promising crop varieties. The very best of the promising leads become tentatively recommended practices.

b. The field experiment (farm experiments): Those practices showing the best results at the national and/or regional substations are now tested at scattered locations within the region to measure their performance under more varied soil and climatic conditions. They are tested at various levels of application and in varying combinations. Those practices with the best results become general recommended practices for the area involved. In short, these field experiments are the means for localizing general recommendations.

An experiment is a test that compares two or more treatments (e.g. two or more practices or varying rates of an input like fertilizer). Its design and management are based on rigidly standardized scientific procedures for assuring accurate unbiased results that are not influenced by extraneous factors. The results are subjected to a rigorous statistical analysis to determine if there is really any significant difference between treatments.

Because of the highly technical nature of such experiments, extensionists are not encouraged to carry out either small-plot experiments or field experiments themselves, unless absolutely necessary and then with tremendous technical support and conservatism with regard to results. Adaptive research steps like these are the final research efforts which adapt a practice to local conditions. As such, the extensionist role is to make sure they occur, scrutinize their appropriateness, and assist where necessary in their completion.

c. The field test or trial (the result test): This type of test or trial is usually conducted by extension workers in cooperation with participating farmers. Here the practice or "package" of practices is tested under realistic local farm conditions to determine its true range of profitability for the farmer. A new practice cannot claim to be proven until it passes the result test, which provides the ultimate basis for making a specific recommendation.

The result test is neither an experiment nor a demonstration. Only one variable is selected for testing (e.g. a new practice or a specific "package" of practices) and is compared with the present or "traditional" practice. For example, a result trial would be used to determine the profitability of a given rate of fertilizer like pounds of manure and compost per square meter. On the other hand, a field experiment would be used to determine the response to several or more different fertilizer rates. The result tests are designed to obtain information about a practice, not to promote it. They are conducted on farms, but the purpose is to prove the worth of the practice to the extension worker and the extension agency, not to the cooperating farmers. The two treatments (e.g. the "old" and the "new") are not randomized and replicated as with an experiment; rather, the result test is repeated simultaneously on a number of local farms, since the goal is to get an overall idea of the new practice's performance in the area. Extensionists with good training in the reference crop or animal and the relevant practices can competently supervise result tests, and this can be one of their most valuable activities.

Extension begins when the emphasis shifts from testing to promotion, although there are areas of overlap between adaptive research and extension, especially in situations where resources are limited. Extensionists often visit national experiment stations in search of worthwhile practices to promote, which have undergone adaptive research. It is then up to the extensionist to promote these practices through result tests and demonstrations. The result test can be viewed as either the last step of adaptive research or the first step of the extension process.

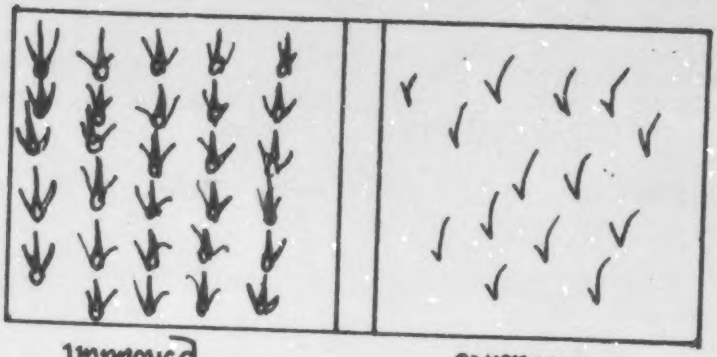
d. The demonstration (result demonstration): This is not a testing procedure like the result test. Its objective is to demonstrate the profitability of a proven (locally tested) practice under actual farm conditions. If the new practice requires a change in traditional procedures, a good amount of in-the-field instruction may be needed along with the demonstration. When groups of visiting farmers receive such instruction as well as view the plot, the demonstration becomes a method-result demonstration. The extension worker should approach farmers from this standpoint: "We have good reasons for believing this practice is profitable and would like to help you prove it to yourself". A demonstration plot like this can be set up by an extensionist soon after arrival in a new locality. It should be laid out in a prominent place in order to arouse interest.

Method/result demonstrations, workshops during which farmers actually practice specific techniques or innovations, are the major extension tool for promotional purposes. See Chapter Four, FARMER TRAINING, for a detailed description of method-result demonstrations.

In all of these techniques for testing the suitability of recommendations to farmers, the extensionist is asked to consider the limits of her technical skill and the limitation of her point of view. Conservative, adequately-tested recommendations serve farmers best.

ILLUSTRATION

Lay out:a result test


Improved
vs.
practices
current
• 4" spacing
(" is inch)
• 50 pounds/square meter compost + manure
• random planting
• no fertilizer

Local Onion Variety Test

TOOL

Checklist

1. Factors which Decrease the Need for Extensive Local Testing of a General Recommendation before Promoting It

   a. Local growing conditions are uniform over the work area (soils, climate, management level, etc.)

   b. The adaptive research on which the general recommendation is based was technically adequate and was subjected to a rigorous analysis (including statistical analysis).

   c. The adaptive research took place under growing conditions similar to those of the work area.

   d. The new practice represents a single factor change (only one new input or change).

   e. Capital requirements are low.

   f. The potential benefits are high and not subject to great variation.

   g. No changes in growing practices are needed.

   h. The extension agent has had prior experience with the new practice.

   i. The new practice reduces costs or shortages by replacing a higher priced or less available input with a lower-priced or more available one. Examples: Substituting an animal-drawn cultivator for laborious hand weeding.

TOOL

Checklist

2. Some New Practices and their Relative Need for Extensive Local Testing Prior to Promotion

   a. A new (improved) crop variety: Very extensive local testing needed along with detailed analysis of the results.

   b. Fertilizer use: Low to moderate rates can be recommended on the basis of limited local testing, lab soil tests, and diagnosis of obvious visual hunger signs. Higher rates should be based on local farm experiments, result trials, and individual farm soil testing. Considering the many local variations in soil fertility, general recommendations often result in the application of too much or too little fertilizer or the wrong nutrient combination. For example, applying only N + O soil also deficient in P (phosphorus) may give the farmer only 25% of the yield response obtained when both are applied.

   c. Mechanization: Depends on the model and type of equipment. Appropriate small scale equipment usually has a wider adaptation than most new practices, although soil and weather can affect performance.

   d. Change in crop rotation or a new cropping system: Very extensive testing is needed (at least several years).

   e. Disease and Insect Control: Chemical and cultural methods have much wider adaptation than biological ones. At least some limited testing should be done with specific chemical and cultural controls before promoting them to farmers.

   f. Chemical weed control: Effectiveness varies greatly with different soils and weather conditions; local testing should always precede promotion.

   g. Irrigation practices: Feasibility studies conducted by experienced technicians should always precede the installation of a new irrigation system; possible negative environmental effects must also be examined (i.e. salinization, ground water depletion, malaria, bilharzia, etc.)

   h. Introduction of a new crop: Very extensive testing is required.

TOOL

Checklist

3. How to Set Up A Result Demo Plot

I. Select an appropriate practice or "package" to demonstrate

a. Given a lack of local experience and time to adequately test practices, rely on the local extension service to provide appropriate choices; always check to see if adequate local testing has been done; the amount needed will vary with the practice, i.e. selecting an adapted improved crop variety requires much more lengthly local testing than the use of mulch or insecticides.

b. One practice vs. a package: Although a package may be more complex and cost more, it may be the only way to achieve good enough results to interest farmers. A well designed package actually reduces farmer risk.

c. The practice(s) chosen should be afforable, adapted, and profitable for the majority of farmers. Some extension services may divide the region's target farmers into several recommendation domains, each with an adjusted package to reflect variations in soils, topography, economic circumstances, etc.

d. Gestation period: At least in areas where extension efforts are relatively new, practices that produce results in weeks or months are more likely to be readily accepted than those requiring longer periods.

II. Select a cooperating farmer (or organization)

a. Choose key farmers who are influential but not necessarily the best or most progressive, since they may be regarded as eccentric or as favored pets of the extension service.

b. Group demos on rented land are OK, but the group should be a pre-existing one (like a co-op) rather than one specially organized for the demo.

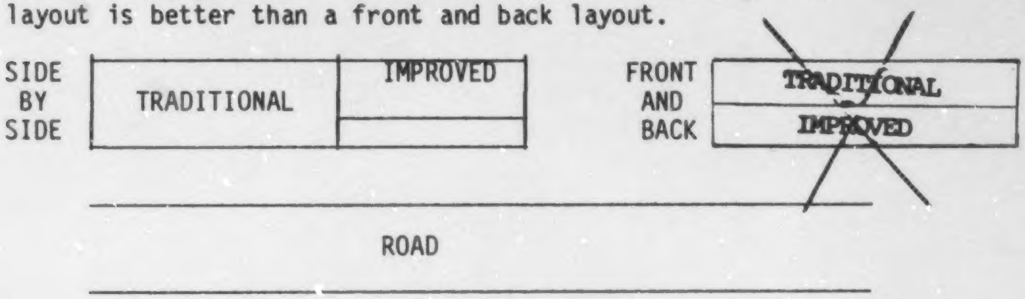
c. Since the farmer or farmer's group should do most of the actual work (this makes the demo credible), be sure that this is understood. This brings up the question of whether the inputs should be donated or charged for.

III. Choose a suitable location and layout

a. Site criteria: A conspicuous location with good exposure like near a road or trial. The land and soil shouldn't be atypically favorable or unfavorable but representative of target farmers' situations.

b. Size: Large enough to be realistic but not so big that it's difficult to visually compare the traditional and improved practices plot side by side. A couple hundred sq. meters per plot would be adequate for a maize demo, with less area sufficing for more intensive crops like veggies. It's also easier to find cooperative farmers if they know that the plots will be small, thus minimizing any perceived risk.

c. Plot layout: Decide the best way to show off the demo to an audience, plus consider audience size. A side by side layout is better than a front and back layout.



It's usually best if the rows run front to back rather than parallel to the viewing area. This makes it easier for farmers to enter the plots.

IV. Provide adequate supervision of the demo

a. Both the extension worker and the farmer need to be thoroughly familiarized with the what, why, when, and how ofthe various operations involved. b. Make sure the needed inputs are on hand.

c. Make sure that the inputs and other practices are correctly applied on schedule.

d. Avoid the tendency to favor the improved practice plot by giving it an unrealistic amount of care.

e. Keep accurate records, including rainfall, which will help analyze the success (or failure) of the demo.

V. Promotion and Followup after demo

a. At what stages will the demo produce visible results worthy of farmer attention- (i.e. only at harvest or by color and plant size difference at earlier stages).

b. Arranging farmer visits

- Supervised, scheduled visits conducted periodically at key stages are best. Since new practices usually require a combination of explanation and instruction, a combined result-method demo may be appropriate. However, do not count on farmers being convinced enough to try the new practices even by the time a successful demo reaches harvest stage. Also, farmers may not be able to apply the practices until next cropping season.

- Any demonstration should provide farmers with realistic cost-return data for the practices. Researchers and extension workers tend to exaggerate the claims and benefits of a new practice. Be conservative, yet realistic. A typical result demo is done on a small scale when farmers implement the methods on larger fields.

What About The "Spontaneous" Demo?

A Spontaneous Demo is a very effective type of demo using farmer's field that already demonstrates the benefits of what you're trying to promote. One advantage of the spontaneous demo is that it escapes the possible stigma of appearing contrived like a purposely organized result demo.

4. How to Make Conservative Recommendations

Researchers and extension workers tend to exaggerate the benefits of a new practice, while farmers usually have a more objective attitude. Here are some rule-of-thumb adjustments for arriving at realistic claims.

I. Discount the amount of yield increase claimed for the new practice:

   a. An experienced extensionist with lengthy local experience can discount claims pragramtically.

   b. Result test data is representative: Discount expectations of increased yield by an amount equal to the standard deviation (a measure of statistical variance that you can calculate using the PC/ICE Traditional Field Crops manual.)

   c. If the recommendation is based on outside data, discount the yield increase by at least 25%.

   d. If test results occurred under a better than average crop year, discount increased yield claims by a least twice the standard deviation or by 35%.

II. Make an additional discount for less than optimum employment of the new practice by farmers.

For example, the effectiveness of recommended fertilizer rates depends greatly on proper timing and placement. There are no rules of thumb here. Usually, the more complex the practice and the more new skills involved, the greater the discount should be.

III. Make conservative economic estimates on returns

A new practice's potential economic returns make fertile ground for exaggeration:

   a. Base all estimated costs and returns on "farm gate" costs and prices so that items like transport and commission are included.

   b. Use harvest time prices when estimating returns.

   c. After calculating the additional costs for the new practice(s), add on an extra 10% as a safety factor.

NOTE: Obviously an extensionist might end up discounting claims to a ridiculous extreme if he applied all the above guidelines. Remember that the purpose is to make claims realistically conservative, so it is wise to use judgement.

TOOL

5. Ways of Reducing Risks Associated with New Practices

Aside from assuring that new practices are adequately tested locally before promoting them, there are several other ways of reducing farmer risk:

a. It is usually better to encourage farmers to try a new practice on only a of their land. This reduced both risk and hesitation and also enables the farmer to make comparisons.

b. In the case of purchased inputs, recommendations should be geared to providing the low budget small farmer with the maximum return per dollar spent rather than maximum profit per hectare. This is especially true for a high cost item like fertilizer; since yield responses begin to drop off as rates increase; low to moderate dosages will give the best return per dollar. (Bigger farmers can work on the principle of high volume, low return per dollar which give maximum profit per hectare).

c. Make sure that farmers thoroughly understand the how, what, when, and why of the new inputs or practice(s).

d. Small farmers in any area will vary in skills, capital, and management ability. The extension service should make sure that its recommendations are tailored to the needs of the majority but should also make provison for the special needs of more advanced farmers.

e. A "package" of practices that addresses the major yield-limiting factors simultaneously may also reduce risk under certain conditions.

6. Ideal Conditions for Promoting Improved Crop Production Practices to Small Farmers

- The new practice does not increase farmer risks.
- It does not depart radically from current practices or require considerable re-training.
- The potential gains exceed the added costs by at least two to one (This is the benefit/cost ratio.)
- The needed commercial inputs and associated services involved with the practice are readily obtainable at reasonable terms. For example, the spread of improved maize varieties in Kenya was greatly aided by the establishment of a network of 1000 small seed suppliers.
- The practice has been thoroughly tested in the area where it is to be introduced.
- The pay-off from the new practice occurs in the same crop cycle in which it is applied.
- The costs of the new practice are within the farmer's means. This usually implies access to reasonable credit.

TOOL

7. Cost/Benefit and Net Return Analysis

This is a tool for measuring the economic benefit or loss attributable to a specific practice. It can be used to measure existing practices or new ones.

Procedure

- o List all inputs used in a practice.
- o List cost of each input, in money terms. (Give effort to gather them a money value for locally-available inputs).
- o Record and summarize costs of inputs.
- o determine and record yield attributable to a practice.
- o Calculate the money value of that yield.
- o Set up a cost/benefit ratio.
- o Determine the economic benefit of a practice.

Example:

Inputs and Cost

Labor	Available	-
Seeds	5 pounds at 15¢/lb.	.75
Hoe	Available	-
Manure	100 pounds at 10¢/lb.	10.00
Mulch	Available	-
	TOTAL COST	$10.75

Estimated Yield

10 pounds onions/square meter 3 square meters	30 pounds onions

Yield Value

Market price $2.00/pound 30 pounds	$60.00 value

TOTAL COST	$10.75
VALUE & YIELD	$60.00

Economic Benefit
$49.75 total

"Administering Credit"

OVERVIEW

Farmers can exercise certain options only when they have the financial resources to do so. Accumulating these resources (sometimes called 'capital') is a necessary first step toward innovation and change. Farmers can accumulate resources by saving surplus income or borrowing resources from other sources. To the small-scale farmer saving presents a major problem because even the diligent application of customary farm practices does not often yield much surplus beyond home needs. One of the major catalysts of potential farmer innovation in developing countries is therefore the provision of credit.

There are many kinds of credit: informal sharing of a shovel and family communal labor, village-level borrowing at the money lender's, bank loans or inputs-credit schemes. Beyond the village level, credit is both a powerful tool and a potential cause of dependence. While credit is a way of life for American farmers, it is only as a last resort or an initial catalyst event that it is considered in this manual. Cooperative ventures and capital-sharing are better ways to help small scale-farmers gain access to the resources for change. (See TOOL Forms of Credit for Small Scale Farmers).

Farmers themselves have various motives for using credit:

CONSUMER CREDIT

- Survival - when a crop failure or family ilness causes the normal balance of home needs and harvest to go out of balance.
- Family and Social Obligations - when a wedding, funeral or other family obligation requires money or resources not at hand.
- Consumption - when something the farm family wants is beyond normal means.
- Investment in the Home or Cottage Industry - when the farm family wants to buy a labor-saving device (corn grinder), set up a cottage industry (sewing machine and cloth) or repair/expand a house.

- o Survival of Farm Enterprise - (e.g. securing seed or using a cultivator) securing resources necessary to keep the farm going.

- o Paying for Seasonal Labor - extra labor beyond the family may be needed to plant, weed or harvest when there is no surplus to provide wages.

- o Acquiring Inputs - purchasing new tools, fertilizer or equipment to carry out a new package of practices.

- o Increasing Efficiency - sometimes farmers wish to substitute animal or machine power for human power for land preparation, for example, but need to borrow to employ it before realizing profits.

- o Marketing - while waiting for a good price for their produce farmers may need to borrow to survive.

- o Expanding the Scale of Farm Business - to acquire additional land, to finance farm improvements (clearing land, building storage facilities, constructing irrigation works, etc), to increase herd size.

It is important for the extension worker and small-scale farmers to understand why and how credit is extended to farmers. Credit being a form a dependence on resources beyond farmers' control, it should be carefully and cautiously used. When the motivation of the lend is different than the farmer's motivation, there is much less opportunity for informality, for leeway with regard to the repayment of a loan, and generally for sympathy for the farmer's precarious position. It is of prime importance that the extension worker and farmer seeking credit be aware of the motives of lenders.

Locally, credit can be extended as a social obligation or an aspect of friendship or family responsibility. However, credit is most often proferred in order to earn interest on the loan. This is the basis of commercial lending in and out of the village. Beyond earning interest, credit is loaned to facilitate sales, to assure the delivery of farm products or as a public service through development projects. These motives are important to consider in seeking credit with farmers.

In order to determine whether it is worthwhile to incur the risks of using credit, it is useful to calculate the costs and terms versus the profitability (the cost/benefit) of credit. The cost of credit is not fixed and has to be determined by lender and borrower in informal cases like communal labor. There may also be customary or unwritten rules as to what such credit costs/terms will be. The cost of commercial credit on the other hand is always the amount of the loan, plus agreed-upon interest, plus any expenses incurred by the borrower in securing the credit.

Most of the cost of a commercial loan is interest. Interest is calculated a variety of ways, each resulting in a different amount of credit and a different cost (see ILLUSTRATIONS). A common form of interest for small-scale farmers is the advance sale of crops, in which the lender is promised crops at current prices even though the price will be higher at harvest time. The difference in price constitutes a loss to the farmer which is a form of interest, or credit cost.

Credit "terms" are all the conditions, including credit costs, that are part of an agreement between lender and borrower. (These are listed in the TOOLS section.) The usefulness of credit is a measure of the costs and terms versus the returns or results of credit use. Cost/benefit is calculated in monetary terms for most commercial credit, although timeliness, social appropriateness and other considerations also must be weighed. Most especially, the Peace Corps extension worker must help a farmer weigh the value of credit against the danger of dependency on factors beyond the farmers' control. This must always be part of the calculation of credit cost/benefit.

Because most commercial credit is extended for profit, it is rarely extended to the small-scale farmer. What with the uncertainties of weather, pests and diseases, the limited money-making ability of the small-scale farm, and the inconvenience of administering credit to a far-flung clientele in rural areas, the small-scale farmer is often not considered a good "risk".

Other forms of institutional credit (through development projects or ag product distributors), where these exist, are more readily available to small-scale farmers, but do not allow freedom to use the loan for any purpose. The loan must go to producing a certain crop or buying certain inputs. Thus, it is not easy to help small-scale farmers gain access to credit.

The process of acquiring credit involves, first, surveying a farmers' needs and clarifying with her the specific need to borrow capital. Secondly, the farmer and extensionist must inventory local credit sources. Next, extensionist and farmer must calculate the costs of credit and estimate the returns to the credit to determine the cost/benefit of employing the credit opportunities identified. This would include clarifying the terms of credit. Then the farmer and extensionist must apply for the credit. Finally, the extensionist must help the farmer honor the terms of the loan and re-pay it when due. Refer to Chapter Five, ORGANIZING COOPERATIVE ACTIVITIES, to see how to bring farmers together to solicit credit. Use the TOOLS in Chapter Six, MANAGEMENT, to help organize and carry out this process of acquiring credit.

ILLUSTRATION

1. An example of the results of a credit inventory:

   Source: Ag supply store.

   Type: Credit on fertilizer and hybrid seed, at planting time, to be repaid at harvest.

   Location: Capital city, 400 km away.

   Terms: Only for farmers or organizations who buy 2 tons of fertilizer and $100 worth of seed.

2. An example of credit costs:

   a. Simple credit cost

Total loan $100	
Credit costs (fixed fee)	$10
Farmer expenses (travel)	$ 5
TOTAL CREDIT COST	$15

   b. Annual interest credit cost
   Total loan $300

$300 loan
8 months
8% annual interest
2% fixed service charge

INTEREST ANNUAL RATE	x	TOTAL LOAN	x	% YEAR USED = INTEREST CHARGE
.08	x	$300	x	8/12 (.75) (months) = $16

Total interest charge	$16
Fixed service charge	$ 6
Farmer expenses (travel)	$ 5
TOTAL CREDIT COST	$27

TOOL

FORMS OF CREDIT FOR SMALL-SCALE FARMERS

LOCAL SOURCES

- Borrowing tools, seed or other inputs from a neighbor, friend or cousin
- Work companies (groups of laborers work on each other's fields or work in a field for reciprocal work late)
- Communal labor (village farmers provide labor to local leaders out or respect and in the knowledge that leaders are benefactors in times of hardship)
- Informal sharing of equipment labor or other inputs in the village
- Borrowing from local money-lenders, merchants or leaders to pay back in kind at harvest.

INSTITUTIONAL SOURCES

- Borowing from local lenders commercially - to be paid back in cash plus interest.
- Cooperative lending institutions credit co-ops, farmers associations or co-ops, consumer co-ops, etc.
- Ag product processors, e.g. canneries who extend credit as advance payment to get ag products.
- Ag equipment suppliers, e.g. fertilizer suppliers or feed dealers to extend credit to stimulate sales.
- Commercial banks
- Government or development agency - sponsored credit programs.

Identifying these sources is another research task which may be done with reference to that chapter as a guide.

TOOL

Checklist for clarifying credit terms

Once sources are identified, terms become the major consideration in matching credit alternatives with alternative opportunities to employ additional capital in the farm enterprise. The following checklist can be used to determine the terms under which credit is being offered through the credit sources available to the subject group of farmers.

CREDIT TERMS

1. Credit costs
    a. Credit charges.
    b. Credit expenses.
2. Security.
    a. Land.
    b. Capital assets.
    c. Savings account.
    d. Conditional sale deed.
    e. Sponsors.
    f. Integrity of the borrower.
3. Duration of the loan.
    a. Less than 6 months.
    b. "Til harvest."
    c. Six to 12 months.
    d. One to five years.
    e. "Until repayment."
    f. Over five years.
4. Timeliness of loan.
    a. Is the loan available at the time needed?
    b. How flexible to change is the date of repayment?
5. In kind or cash?
    a. Is the loan disbursed in kind (fertilizers, seed, etc.)
    b. Is repayment required in kind?
    c. How are values (prices) set on these goods?
6. Constraints on Credit Use: Is it stipulated that the funds be used only in a specified fashion?

7. Application procedures.

    a. Application form.
    b. Financial statement.
    c. Personal interview.
    d. Farm visit by field superisor.

8. Disbursement procedure.

    a. Processing time required.
    b. Form of disbursement.

9. Repayment procedure.

    a. Lump sum payment.
    b. Partial payment or partial amortization.
    c. Periodic repayment of principal and interest.
    d. Interest paid in advance.

10. Penalty for default.

    a. Discount for loan paid on time.
    b. Penalty charge for default.

11. Other terms.

"Selecting and Producing Seed"

OVERVIEW

The quantity and quality of seed is one of the most limiting factors in crop production. It is essential that small-scale farmers gain access to necessary amounts of high quality seed if they are to realize profitable yields. Yields are a function of many factors, two of which are variety (the type of seed) and seed quality. (See TOOLS for checklists of "Factors To Consider in Evaluating Seed Variety", and for "Guidelines for Selecting Quality Seed".) Because adequate quality seed is not often available to farmers in developing settings, extensionists may have to multiply or at least help farmers grow their own seed.

There are generally four variety types:

Traditional Varieties

These are the varieties most village farmers use. Local varieties' advantage include:

- o farmer familiarity with their characteristics and needs
- o fair to good resistance to local insects/diseases
- o local availability
- o proven ability to produce acceptable yields under local physical and management conditions (local adaptation)
- o low cost
- o ability to be multiplied successfully on the farm

Disadvantages:

- o adapted to low soil fertility and management practices
- o low responsiveness to increased soil fertility, use of fertilizer or other improved practices

Hybrids

These are produced (by crossing two or more inbred lines of a crop) by plant breeders at seed multiplication centers. Advantages:

- o out-yield local varieties by up to 35 percent
- o more resistant to insects/disease
- o responsive to improved practices and fertilizer use.

Disadvantages:

- not locally available
- not replicable on the farm
  (hybrid seed reverts back to original characteristics if replanted, yields drop sharply)
- expensive
- unfamiliar to local farmers
- require good management practices
- have a narrower range of adaptation to growing conditions

Synthetics

Synthetics are improved varieties developed from cross-polinate lines tested for their combining ability. Advantages: Same as hybrids above

- greater genetic variability (more adaptable) than hybrids
- less expensive than hybrids
- seed can be replanted if carefully selected

Disadvantages:

(Same as hybrids)

Varieties improved through mass selection

These occur through natural crossing between plant lines without tests of combining ability. Advantages:

- better response to fertility and improved practices than traditional varieties
- cheaper than synthetics or hybrids
- seed can be replanted

Disadvantages:

- less responsive than hybrids or synthetics
- product of more random process

By using the TOOLS indicated in this subchapter, farmers and extensionists can choose the type and specific kind of seed for use on local farms. Once the type and specific varieties of seed are chosen, it is important to make sure enough quality seed is available. If a hybrid seed is chosen, then providing adequate seed involves identifying a professional seed multiplication center which has the variety, procuring and then distributing the seed. If farmers select a synthetic or mass-selected variety, initial procurement from a seed multiplication center may be necessary. However, synthetics and mass-selected varieties, like traditional varieties, may be replanted and therefore replicated on the farm.

TOOLS

1. ICE manual M 13 Traditional Field Crops
2. ICE manual M 2 Small Farm Grain Storage
3. ICE reprint R 25 Intensive Vegetable Gardening for Profit and Self-Sufficiency
4. ICE reprint R 40 Rice Production
5. ICE packet P 4 Small Vegetable Gardens
6. Locally available manuals, booklets and pamphlets on seed propogation and crop production.

Seed multiplication on the farm involves several steps. First, the farmer and extensionist must be sure the variety they wish to multiply is not a hybrid. Second, the farmer should determine the amount of seed he wishes to produce for replanting and designate a portion of his yield for that purpose. Third, during harvest and the processing of the crop, special care should be taken to select and dry the seed to replant. (See "How To Select Home Grown Seed" in the TOOL section.) Four, seed should be stored carefully away from sources of moisture, insects and disease which can damage it. Finally, when selecting seed for use at planting time with farmers, conduct a germination test and/or a field test to make certain seed quality is good.

ILLUSTRATION

Ralph has been working with local rice farmers for six months. They have been experimenting since last year with new varieties which a previous extension agent had introduced. Some of the new varieties had yielded much more than the local varieties. Three in particular are of note. One variety yielded double previous yields. Two others exceeded local variety yield by significant amounts. The farmer (Jo) who used the highest yielding variety also used a recommended application of nitrogen fertilizer. Of the farmers who used the other new varieties, only one (Abdul) used fertilizer at all, below the recommended rate.

This year, Ralph does not provide fertilizer to farmers himself and the farmers do not buy any on their own. The farmers insist on using the same new varieties, however. Jo is astonished to find that the highest-yielding variety of last year yields less than most local varieties. Abdul, who used a different new variety with some fertilizer, found his yield to be almost as good as last year. Ralph concludes that Jo's variety is probably a hybrid geared to special fertilizer and management practices, and that Abdul's is a synthetic or mass-selected variety. Ralph verifies his conclusions with regional ag researchers. He then explains the difference in variety types and characteristics to the farmers and recommends Abdul's variety fertilizer and a locally adapted package of growing practices. The farmers agree to use Abdul's variety, to purchase seed from him, and to forego the purchase of other outside inputs. Ralph plans to help each farmer multiply his or her own seed during the year. He also plans to test all the varieties present in the area with the help of the local ag research station.

ANOTHER SITUATION IN WHICH SEED SELECTION IS IMPORTANT:

Chris and her counterpart Jina have been working with a group of women on kitchen gardens. The women are particularly interested in reducing the amount of inputs they must purchase with hard-won cash. The two extension workers are therefore trying to determine several things: which local vegetable varieties can be easily grown for seed; what germination rates can they expect from these varieties; what varieties will maintain their viability in successive propogations? With time Chris learns from her investigation that there are no lists of "recommended varieties" for the area in which she works. She realizes she must learn about the seed from local farmers/gardeners, and by personal experience or local testing. She comes to understand that this will be a long process which must precede any gardening project.

"Providing Farm Inputs"

OVERVIEW

Beyond credit, locally-adapted practices and adequate seed, there are other outside inputs to which small-scale farmers do not have ready access. The extensionis may help farmers directly by providing such inputs when needed. These inputs may include:

- labor, equipment or machinery
- tools
- manures, lime and other organic soil treatments
- manufactured or inorganic fertilizers
- pesticides, herbicides, and other ag chemicals
- storage containers
- any other items necessary for production, harvest and processing of ag products.

Through thorough research and planning (see Chapter Two), the extensionist and farmers determine which crops or livestock should be raised and generally which practices to employ. The extensionist makes sure any recommended crops or livestock practices are thoroughly tested under local conditions. Then, based on farmer interests and recommendations, farmers choose the practices and crops/livestock that seem best for them. At this point the farmers and extensionist assess the need for various specific inputs to their farm enterprises.

Determining what inputs are needed involves, first, an assessment of the specific problems each crop or animal enterprise entails. Then the extensionist and farmer can list various inputs to solve each "specific problem". Finally, the farmer can choose the most appropriate input for the job.

For example, in order to raise okra, a farmer must weed her plot on several well-timed occasions. (See ILLUSTRATION for an example of this process). She will probably choose the most convenient and familiar, cost/beneficial weeding inputs, in this case mulch and one locally-made hoe.

It is extremely important that the extensionist and farmer weigh the appropriateness of any input employed in the farm enterprise. (See TOOLS for "Guidelines for the Selection of Appropriate Inputs" and Chapter Six, MANAGEMENT, "Planning", TOOLS for "Guidelines for Selecting Appropriate Resources"). Appropriate in this case means useful to the small-scale farmer. The choice of an appropriate input involves much more than the technical solution to a problem. The independent choice of several inputs for a production project on purely technical grounds can add up to a gross dis-service to other farmer interests and needs.

For example, using pesticides in an irrigated rice field upstream from a drinking or washing hole is not appropriate, even though it may solve the immediate insect problem successfully. Friday afternoon work companies to prepare land for planting are not appropriate in a Muslim village where worship is held on Friday afternoon, even if they are the best local form of communal labor. Choosing inputs involves the spectrum of farm and village interests.

Procurement involves these steps: identifying the sources of inputs, ordering the materials or making sure the materials are available, arranging for payment and transportation, purchasing and transporting the inputs and storing and distributing them. Logistics are often difficult where roads, communications, networks and transportation systems are new and incomplete. It is therefore necessary to plan and carry out procurement steps in a rigorous way. See Chapter Six, MANAGEMENT "Planning" and "Carrying Out Plans" for TOOLS to procure inputs.

Distribution of inputs should be orderly, efficient, culturally appropriate and well-documented. The more inputs to be distributed, the more formality is necessary. (Chapter Six, MANAGEMENT, provides TOOLS for the formal 'management' accomplishment of tasks like distribution of inputs.

"Fairness" is often an issue which arises when inputs like tools or fertilizer are being distributed. "Fairness" is culturally-defined, however, and is rarely the same to an American and a Costa Rican or Kenyan person. For example, an American extensionist may receive a partial shipment of vegetable seed in response to an order through the agriculture ministry. Since there is not enough to fill every farmer's specific order, the extensionist may decide to equally divide the seed among all farmers to be "fair". The local chief may be very upset to know he is to receive as much as his neighbor, an ordinary village person. To the chief, "fair" means according to local custom, by which the chief is accorded more out of respect. The orderly and efficient distribution of inputs must be culturally attuned or it will cause misunderstandings and create serious mistrust.

Some inputs may be borrowed instead of purchased. These may be treated like credit in terms of assessing cost, terms and cost/benefit. Keeping careful records of equipment, machinery or input loans is imperative. Signed or witnessed agreements, according to local custom, help sort out terms when return or payment is due. Borrowed inputs must be monitored carefully and cared for according to agree-upon terms.

In situations where support services are new, the provision of inputs is of tremendous importance but also is a tremendous source of power. If an extensionist is the only person in a village with real access to the inputs which village farmers need in order to realize profitable yields, the extensionist's power is apparent. When inputs are procured and stored through the extensionist and they must be distributed by him, he holds another kind of power. If the inputs are to be procured through him, the extensionist can even reserve the power to choose which input to get. This is the power of doing things for people.

In situations where ag support has not reached small-scale farmers, the power to help this way is often a challenge worth the risk of dependence. It is important for the extensionist to understand that he can only accept this responsibility provisionally, however, even though at first it may be vital to bring resources to the aid of small-scale farmers in this way. Accepting responsibility to be a source of inputs to village farmers, the extensionist must always keep in mind the needs, interests and goals of farmers, and help to meet them. In the case of farmers who wish to use harmful and dangerous pesticides on their crops, for example, the extensionist must weigh carefully his personal conviction to say no against his respect for the opinions of his farmer friends. There is no formula for this sort of decision-making, but it is of paramount importance that the extensionist use his 'power to provide' with great care and consideration. (See Chapter Six, "Evaluation", Chapter Five, ORGANIZING COOPERATIVE ACTIVITY; and this Chapter, "Indirect Service").

Fertilizer and Pesticide Use:

It is imperative that etensionists promoting the use of any manufactured fertilizer or pesticide consider the issues involved in their use. Much has been written about "organic" versus "inorganic" agricultural practices. Extension workers are asked to clarify their own opinions and values with regard to these issues, and to work with farmers focussing as far as possible on the wishes of farmer/clients. Where an extensionist disagrees with a farmer over "chemical" use, the extensionist should provide information (technical knowledge) to help the farmer make her own choice. Right and wrong are personal viewpoints in this matter. Farmers have a right to their choice. Extension workers also must exercise thoughtful personal choice.

ILLUSTRATION

Choosing Inputs

A farmer is going to grow okra using a new variety and locally-adapted practices suggested by the local extension agent. The extension agent discusses this project with the farmer after they agree on the practices and variety. A "specific problem" the farmer must cope with is WELL-TIMED WEEDING. The farmer and extension worker devise a list of possible inputs to help solve the weeding problem:

- family members and friends, by hand.
- family members and hoes.
- family members by hand (longer hours).
- mulching and some weeding by family.
- herbicide by local agent and farmer (backpack sprayer).

They discuss the choices. The herbicide is too dangerous and too expensive to use in this situation. Weeding by hand will take too long, especially since family and friends cannot meet at the same time. Hoes sound good, but they will cost a small amount, care of the local blacksmith. Mulch is readily available, bus is not the best sole solution.

The farmer and extensionist agree that the best solution is to mulch the okra garden and purchase one hoe to weed when needed.

TOOLS

1. Guidelines for Choosing Appropriate Inputs

   Useful inputs are:

   - culturally-appropriate
   - in agreement with farmer interests
   - familiar to or easily learned by farmer
   - technically beneficial
   - not economically risky (cost/beneficial)
   - locally available or within easy access

2. For managing procurement sorties, see Chapter Six, MANAGEMENT, "Planning", TOOLS.

3. For using fertilizer and other soil additives like organic manure or compost, see I.C.E. manual R8 (1980) SOIL, CROPS & FERTILIZER USE

4. Distribution Record Chart (illustration)

DATE	TOOLS	FARMER	DATE OF RETURN
5/10/84	hoe	Miki	sold $1.00 paid
5/11/84	hoe	Ishmael	due 5/18
	rake	Ishmael	"
	shovel	Ishmael	"
5/12/84	wheelbarrow	Mary	due 5/19
	hoe	Mary	"
	shovel	Mary	"
5/13/84	10 hoes	Jo and work company	due 5/20
	10 shovels		"

etc

TOOL

Agricultural math aids:

a. See I.C.E. manual R4 Agricultural Mathematics for Volunteers

b. See I.C.E. manual TRADITIONAL FIELD CROPS, Appendices, for

- o How to Conduct an Elementary Statistical Analysis
- o How to Convert Small Plot Yields
- o Measurements and Conversions

c. See the same manual, page 143 and following to see

- o Determining Fertilizer Needs
- o Basic Guidelines for Applying Chemical Fertilizers

d. Consult local ag suppliers farmers or research stations for guidelines on seeding rates, feed rations, etc.

e. See I.C.E. manual R8 SOILS, CROPS & FERTILIZER USE

Ag Chemical Safety Information:

Refer to I.C.E. Traditional Field Crops M13 or Pesticide Safety Packet P4.

"Surveying Agricultural Land"

OVERVIEW

Surveying as it is meant here is the branch of applied mathematics used to determine the area of any portion of land, the lengths and directions of boundary lines, the elevation and contour of the surface and the art of accurately delineating these measurements on paper. Surveying of this kind is a service provided rarely to small-scale farmers. It is important to them for several reasons:

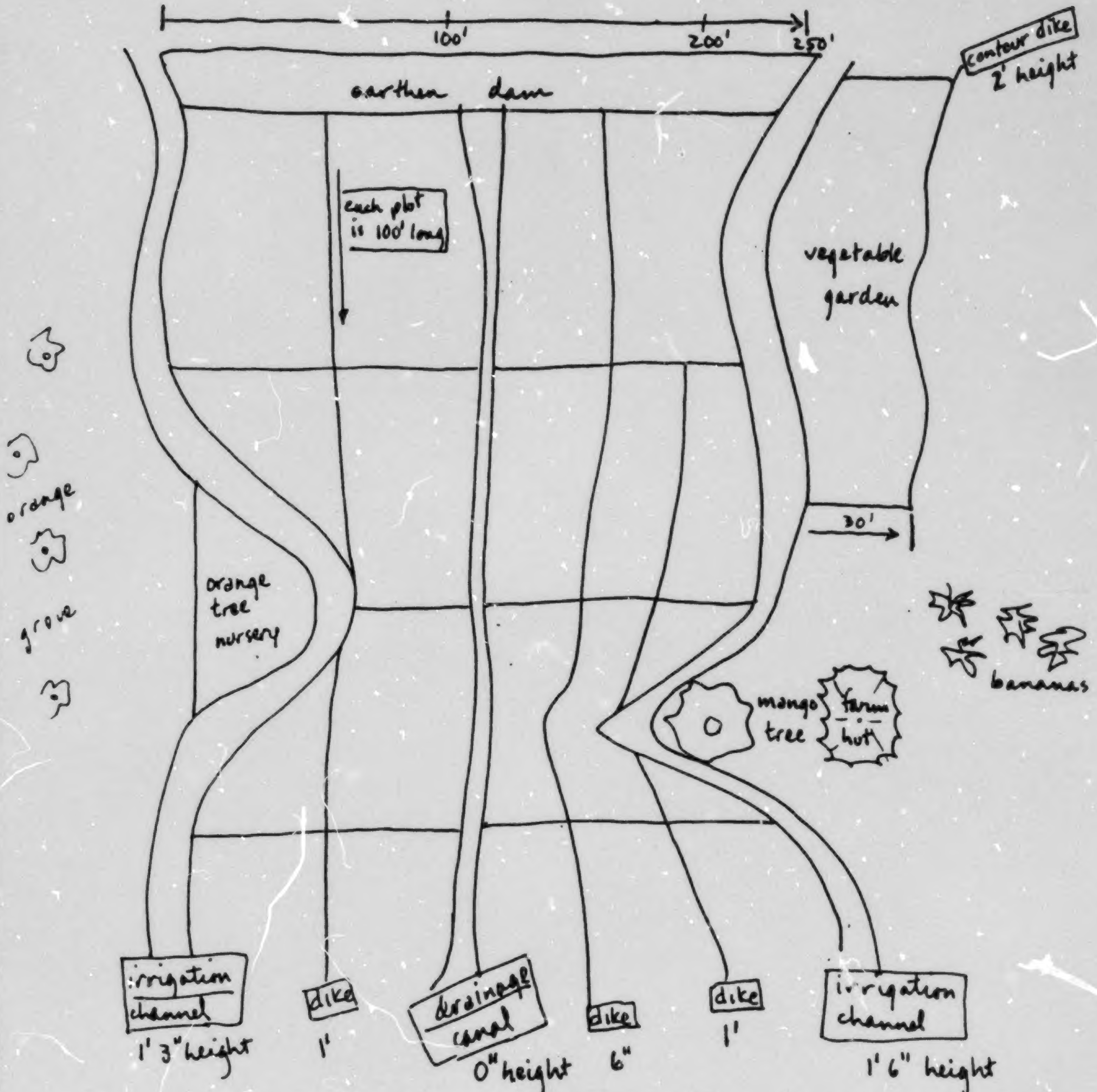
- As land tenure and farm practices allow for more individual ownership or tenancy of land, it is important to know the exact location, boundaries and area of a parcel of land.
- This is doubly true where there is a shortage of land.
- In order to calculate optimum seed, lime, manure, fertilizer, irrigation or other applications on a given extent of land, precise area measurements are necessary.
- In order to properly level or contour a field to use irrigation or rainfall water most efficiently, the elevation and contours must be measured exactly and mapped out.
- In order to locate irrigation channels, dikes or drains, contours and elevation must be accurately gauged.

Surveying is done on two planes: boundaries and area measurement are located on a two dimensional plane - length and width; elevation and contours are located on a three dimensional plane - length, width, and height. Boundaries and area measurements are depicted on a map as lines. Elevations and contours are indicated by points or lines marked with a certain height value, (see ILLUSTRATION).

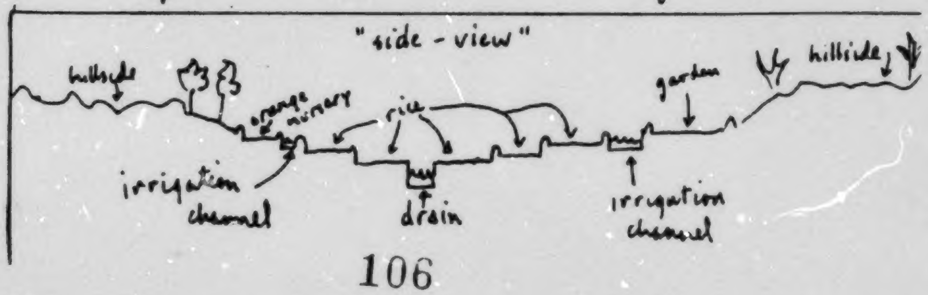
This kind of multi-dimensional "literacy" is not often easy to share with village farmers, who have learned a different type of spatial orientation. See Chapter Four, FARMER TRAINING, "Cross-Cultural Communication", for an indication as to the nature of visual and spatial "illiteracy" and how to cope with it.

ILLUSTRATION

Map and contour survey of Pa Jo's farm (rice paddy & vegetables).


100'
200'
250'
earthen dam
each plot is 100' long
contour dike
2' height
vegetable garden
30'
orange grove
orange tree nursery
bananas
mango tree
farm hut
irrigation channel
1' 3" height
dike
1'
drainage canal
0" height
dike
6"
dike
1'
irrigation channel
1' 6" height

" equals inch
' equals foot


"side - view"
hillside
orange nursery
rice
garden
hillside
irrigation channel
drain
irrigation channel

TOOL

ICE by-request-only reprint.

Sierra Leone Surveying Manual

"Providing Storage"

OVERVIEW

Approximately thirty percent of grain in storage all over the world is lost because of insects, rodents and molds. For the small-scale farmers with whom Peace Corps extensionists work this is a major problem of every day life. In villages protection from such pests and molds is lacking. Because this is a vital area in which to help farmers, I.C.E. has produced an exhaustive manual on the subject. Sections are included on the following topics:

The Grain Storage Problems
Grain is a Living Thing
Grain, Moisture and Air
Preparing Grain for Storage
Grain Dryer Models
Enemies of Grain
Storage Methods

Extension workers must focus some of their attention on issues beyond the production of agricultural products. By helping a farmer double her grain or vegetable yield, an extensionist may cause a major storage problem. Where does the new grain go? How does the farmer protect it from pests, moisture, thieves? The technical information necessary to solve a storage problem is available in the above-mentioned manual. An extensionist can help by encouraging farmers to plan their storage strategies. Also, farmers can determine the most appropriate storage facilities and strategies with the extension worker's help. Finally, adequate storage is the most practical marketing tool a farmer has. He or she can hold onto a crop until prices become favorable if storage is adequate. The importance of storage facilities cannot be overemphasized.

ILLUSTRATION

Maria felt very proud. Due in part to the encouragement and assistance of Joel, the area extensionist, she had worked hard on an intensive onion garden. The yields were great! Joel was also very pleased. Basket after basket was carried to Maria's little adobe hut. It soon became apparent, however, that there was not enough room. Joel offered to store the rest himself.

The price at this time of year was not best, but it was still good. Because of the space problem, Maria elected to sell her entire crop except five basketsful, right away. She realized a modest profit. Two months later, the leftover onions which had not rotted from moisture commanded double the previous price at the local market. Joel and Maria both learned the importance of learning marketing, drying and storage techniques as part of the gardening process.

TOOL

Small Farm Grain Storage Manual

ICE, M 2

"Marketing Agricultural Products"

OVERVIEW

The extensionist is often in a good position to help farmers understand and participate more successfully in the marketing system. One of the largest and most uninviting arenas the small-scale farmer enters by virtue of change is the marketplace. In it, she is subject to the forces of supply, demand, big business and government policies and regulations. Here, if anywhere, the farmer needs the direct assistance an extensionist can provide.

There are two main ways in which extensionists can help small-scale farmers successfully approach the market system: by organizing large-scale cooperative groups aimed at gaining local or regional price advantages, or by securing favorable prices through timely marketing. Refer to Chapter Five, ORGANIZING COOPERATIVE ACTIVITY, to learn about cooperative marketing.

The process of helping farmers secure price advantages through timely marketing involves four steps:

I. Establish who controls the crop/animals at harvest and under what conditions:

  A. Advance sales: farmers may receive payment in advance for a crop, thereby obligating it to a buyer.

  B. Contracted sales: farmers may contract to sell a crop to a buyer at a certain price for certain quality and quantity.

  C. Loan or credit restrictions on sale: farmers may have to sell a harvest when a loan payment is due.

  D. Tenancy or rent restrictions on sale: farmers may have to sell or give part of a harvest to a landowner or local leader due to tenancy terms, rent due or local custom.

II. Establish an estimate of price fluctuations during various seasons of the year (see Price Data TOOL).

  A. Find out the average low price during the month when 75% of all producers sell.

  B. Find the average high price over a time when price is highest.

  C. Make sure the high and low prices are equivalent-same grade product in the same condition at the same point in the marketing process.

D. Subtract low price from high price to get an approximate seasonal price difference.

III. Estimate the costs of holding products off the market

A. Estimate the average length of the "holding period" between the middle of the period of average high price and average low prices.

B. Estimate roughly the cost of holding each product (bushel of rice, pound of beef) off the market

(e.g. - storage facility cost or depreciation; storage losses; handling costs, etc)

C. Estimate the profit or loss to the farmer by holding a crop out of the market. (This depends on the difference between the cost of holding out and the anticipated seasonal price rise).

Net Benefit

Estimate price rise - estimated holding cost = Net Benefit (per unit of crop)

IV. Decide to hold crop or sell

Before a farmer can contemplate marketing strategies, her crop must be free at harvest of any restricting arrangements. If the crop is free at harvest, and if the net benefit of holding the crop out of the market place is significant (more than 25 percent), then the extensionist can advise the farmer to hold her crop out until the price rises to the seasonal average high price.

There are other strategies for successfully participating in the market system. They are listed as one of the TOOLS, "Interventions by Farmers in the Market System". This tool also serves to illustrate the points raised in this subchapter.

ILLUSTRATION

1. A Farmer's Eye View of the Marketing System (ICE reprint)

THE FARMER HAS A VESTED INTEREST IN:	BECAUSE IT DETERMINES:	AND HE PROBABLY KNOWS IT'S RELATED TO:	BUT HE PROBABLY DOES NOT KNOW IT IS RELATED TO:
MARKET ACCESS	Which commodities he can produce.	Transport facilities, quotas, "monopoly" control.	Effects of government policies.
MARKETING STANDARDS (WEIGHTS, GRADES)	How he prepares his crop for market.	Local custom. Buyers' preferences.	Legislation. Processors' preferences.
THE AVAILABILITY AND QUALTY OF DIRECT MARKETING SERVICES (weighing, timeliness of payment, credit, other).	His choice of buyers for his crop.	His personal relationship with the buyer. The buyer's honesty. The buyer's resources.	Buyer's management ability. How much it costs the buyer to perform marketing functions.
OVERALL MARKETING EFFICIENCY	Marketing margins and the price he receives.	How efficiently the transport and assembly functions are performed.	Management and technical skills. Productivity of labor. Many and varied costs. The less visible market functions.
COMPETITIVENESS OF THE SYSTEM	Marketing margins and the price he receives. His choice of buyers.	Number of potential buyers, and alternative markets. The buyers' financial and political power.	Control of financing. National policies. The subtler forms of influence.
THE MARKET, EQUATING SUPPLY AND DEMAND (price determination)	More than any other factor determines the prices he receives for his products, planting and harvesting schedules, and his farm enterprise mix.	Orderly marketing. Seasonal factors. The size of the total crop. Distant demand factors beyond his control.	National policies. How much of the consume rprice is absorbed by the marketing process. Internal supply and demand. Costs of holding the crop.

TOOL

Checklist for collecting price data (ICE reprint)

SOURCES OF DATA:
(current)

- actual sales
  - -reported by farmers
  - -reported by local people
  - -reported by handlers of products
- reports by ministries, market publications, etc.

(historical)

- recent memory
  - -as above
- official reports and studies as above

ANALYZING DATA:

- collect data from sources
- convert all data to common units of value
- check prices to eliminate abnormally high or low prices
- make sure information on prices is relevant to the community in which farmer/clients live.
- establish average prices by observing them over a regular period of time (2 or 3 weeks).

TOOL

Interventions Farmers Can Make In The Market System

Farmers can influence four factors which affect the prices of their products over a short period of time:

- Time of sale
- Choice of Buyer
- Collective or individual marketing
- Condition of the product

Farmers can learn about their options concerning these four factors with extension workers. Often the prie of a product is lower near normal harvest time, so holding the product in storage is often a way to gain a higher price. Storage depends on perishability, facilities, farmer's ability to wait for income, etc. The choice of buyers is often limited for small-scale farmers, due to transportation costs. Collective marketing is advantageous when costly transportation is a means to a higher price. Collective marketing involves thorough planning of harvest, handling & storage as well as price and profit-sharing agreements. The extension worker can help point out the need for these considerations and can facilitate the process of dealing with them.

INDIRECT SERVICES

A reminder

In the Introduction to this chapter the difference between direct and indirect Service is explained. Indirect service means "facilitating" or helping people do things for themselves. This can be illustrated by the familiar Chinese proverb

> "Give a person a fish, you feed her for a day.
> Teach a person to fish, she can feed herself
> for life."

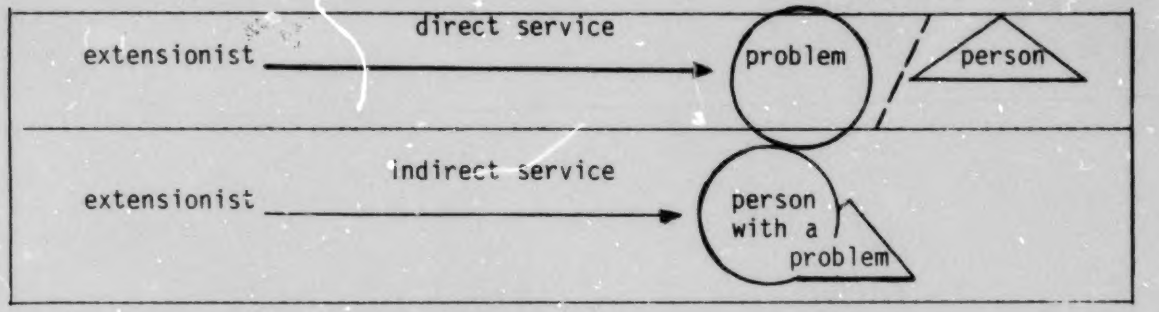
In the realm of providing agricultural service, facilitating is helping farmers strive to depend directly on themselves and the sources of service rather than on an extensionist. Direct service sets up two relationships: between the extensionist and the farmer, and between the extensionist and sources of support. In indirect service, the extensionist removes himself and allows farmers to gain direct access to sources of support.

This shift often involves a change in both the nature of the service and the source of a service. Generally, indirect service finds sources closer to the village while direct service can range far afield. Extensionists are urged to choose sensitively between direct and indirect service to provide farmers with access to resources which allow them more permanent choice and creative power, as opposed to new forms of limitation.

"Working With Individual Farmers"

OVERVIEW

In order to help a farmer act more independently to solve farm problems or secure needed services, the extensionist first must strive to understand the farmer's motives and interests. Unless the extensionist herself knows how to secure a service or solve a problem, she is not in a position to help a farmer do it. Farmers, as practitioners of local technical skills, often have their own valid and workable understanding of problems and solutions which should be carefully checked before the extensionist acts to solve a problem. There is a subtle shift of attention, in providing services indirectly, from the problem itself to the person whose problem it is.



The extensionist's interaction is with the farmer directly. The activity for the extensionist stops being a purely technical task and becomes an interpersonal and technical task. Extension tasks take on this interpersonal dimension dramatically, consciously and centrally.

Practically speaking, "two-dimensional" extension tasks are accomplished by doing each step, every detail, in the farmer's presence and with his help. The farm visit, for example, must be done with the farmer each time. The particular problem viewed, (insect damage to a crop, for example), is looked at with two sets of eyes. The extensionist feels a responsibility to show the farmer the problem, to listen to and understand the farmer's view of the problem, and to devise a response to the problem in conjunction with the farmer in a way that includes the farmer in the process. This is the habit of "counterparting", of seeking a specific farmer co-worker for each extension task and activity.

Having confronted a problem jointly and discussed it equally with a farmer, the extensionist and farmer now must consider the options open to them to solve the problem. "Providing Farm Inputs" in this chapter, for example, discussed how to choose appropriate inputs. Using these guidelines, the extensionist works with a farmer to make the choice, emphasizing the importance of the criteria which measure whether the input can be secured and used by the farmer himself. This discussion is not easy, due to language and cultural barriers. But it is essential that it proceed in a way which includes rather than alienates the farmer. Admittedly, this pace of problem-solving is slow compared to direct action. However, something else is speeded up. That is the farmer's rate of learning and growth as a problem-solver with widening scope.

The next step in working with farmers is passing on specific technical skills and knowledge. Because this is a specialized and extensive topic, Chapter Four, FARMER TRAINING METHODS, is devoted to it entirely. Here it should be emphasized that helping a farmer learn technical skills is a long and focused process. When the shift from direct action to the development of farmer skills is complete, the extensionist plays the special role of the trainer.

Another shift occurs when the extensionist endeavors to serve farmers indirectly. This is a shift of responsibility. Whose responsibility is it to provide supportive services to farmers? This is a complex question, but, generally speaking in developing countries farmers assume that extensionists provide this support, especially material inputs. Having been enticed to move out of the self-sustaining security of subsistence farming by cash-crop extensionists in the past, this is a logical assumption for farmers to have. However, dependence on extensionists for necessary support, as another form of limitation substituted for the subsistence system, is not desirable. Moreover, extensionists, by their very existence as outsiders in the village community, are agents of change. Their benevolence and sensitivity notwithstanding, extensionists must accept the fact that, initially, they own the responsibility for change in the village context. In order to practically allow farmers to shoulder this reponsibility themselves, the extensionist works to transfer it back to the farmer.

Once a farmer has decided that a recommended new practice matches her interets and will meet her needs, then it is time to choose inputs and procedures, develop skills and knowledge, and transfer the responsibility for carrying out this project to the farmer herself. An extensionist does this by helping the farmer clarify what needs to be done and who is to do what. (See Chapter Six, MANAGEMENT, for TOOLS "Planning & Carrying Out Plans" for assigning work tasks and commitments). Transferring responsibility in this way involves a series of simple steps. (See TOOLS for "Steps in Transferring Responssibility".)

How can an extensionist be sure a farmer will accept responsibility for solving problems and accomplishing tasks? It is often believed that the "colonial peasant mentality" is too entrenched, and rural farmers are too unmotivated to take charge of and change their lives. This is the most dangerous fallacy under which extensionists can labor. No one can presume to motivate another person. Everyone in the world is motivated in one way or another, for motivation is the degree to which interests and desires are acted upon. Extension involves a process of discerning the unique interests and goals of a farmer. If these coincide with the objectives of an extensionist's work, the farmer will appear to be "motivated" to participate in such work. Extensionists must strive diligently to fashion their own objectives in the image and likeness of the interests of the farmers they serve. By clarifying tasks and following the steps in transferring responsibility for tasks over to the farmer, the extensionist is engaged in the process of defining a clear and limited role as helper. Limiting and defining the helping relationship is an essential skill in weaning farmer-clients from dependence on the extensionist.

From the very first day of work in any community the extensionist must make clear the limits of his role and the goal of his work, to help farmers participate in change successfully. The extension worker's role ideally should run a standard course:

> It should expand as a farmer's interest in specific ag resources grows initially. Then the role should slowly contract as the new ideas and skills are more clearly linked to the interests of the farmer, and the farmer begins solving problems with the extension worker more and more. Finally, the extensionist's role is given its clearly limited form in equilibrium with the skills and resources of the farmer herself.

Being an extensionist involves attaining empathy with farmer-clients, but it does not mean being a farmer or doing a farmer's work. It is the responsibility of the extensionist to initiate and promote the process by which farmers reclaim responsibility, develop skills and confidence, and participate actively in the process of change.

ILLUSTRATION

1. "Steps in Transferring Responsibility"

    I. Do a task for a farmer the first time. (e.g. - clipping needle teeth of pig).

    II. Demonstrate how and ask the farmer to help the second time. (Ask her to hold the pig down and try to clip once).

    III. Ask the farmer to try the task on her own with your help.

    IV. Ask the farmer to demonstrate the task to you in its entirety. Work with the farmer to arrange for a local blacksmith to fashion a copy of the tool for the farmer.

    V. Ask the farmer to demonstrate the task to another farmer in your absence, using her own tool.

    (Check with both farmers afterwards to make sure all went well).

2. See this chapter, "Providing Farm Inputs", for INTRODUCTION and TOOLS sections on how to choose appropriate inputs.

3. See Chapter Four, FARMER TRAINING METHODS.

4. See Chapter Six, MANAGEMENT, "Planning" and "Carrying Out Plans" TOOLS, for planning and assigning work tasks with others.

5. See Chapter Six, MANAGEMENT, "Carrying Out Plan", INTRODUCTION, for a discussion of work motivation.

6. See Chapter Two, RESEARCH and PLANNING, "Understanding People" for how to survey the interests and motivation of farmers.

TOOLS

1. See this chapter, "Providing Farm Inputs", for INTRODUCTION and TOOLS sections on how to choose appropriate inputs.

2. See Chapter Four, FARMER TRAINING METHODS.

3. See Chapter Six, MANAGEMENT, "Planning" and "Carrying Out Plans" TOOLS, for planning and assigning work tasks with others.

4. See Chapter Six, MANAGEMENT, "Carrying Out Plans", INTRODUCTION, for a discussion of work motivation.

5. See Chapter Two, RESEARCH and PLANNING, "Understanding People" for how to survey the interests and motivation of farmers.

TOOL

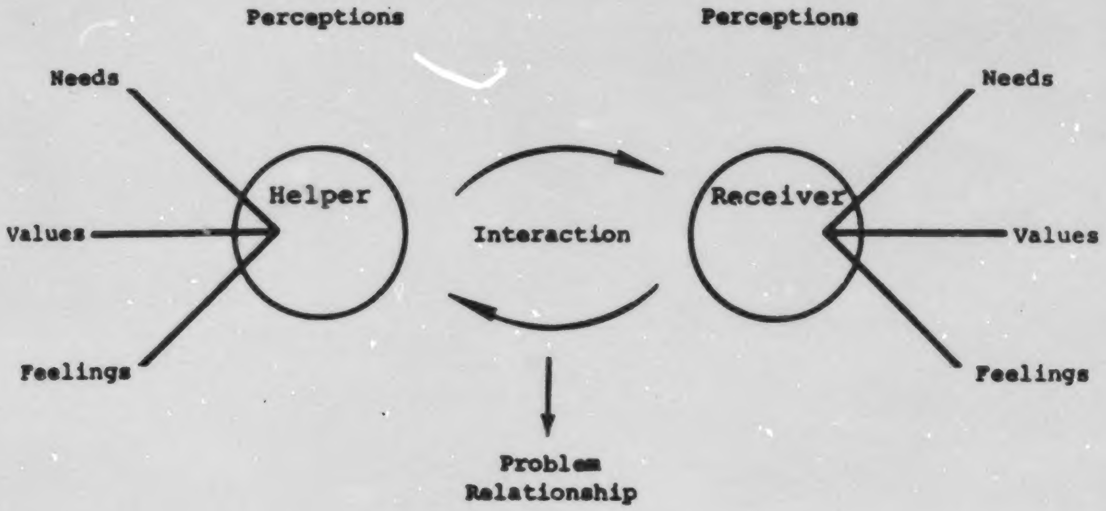
FEEDBACK AND THE HELPING RELATIONSHIP
(Taken from Training of Trainers Manual,
US Department of Health and Human Services)

GENERAL OBSERVATIONS

Different names are used to designate the helping process: for example, counseling, teaching, guiding, training, educating, etc. These have in common the intent to influence (and therefore change) the individual who is being helped. The expectation is that the change in the receiver will be constructive and useful to him (i.e., will clarify his perceptions of the problem, bolster his self-confidence, modify his behavior or help him develop new skills).

THE HELPING SITUATION

One way to look at the helping situation is to sketch it in the following manner:


Perceptions
Perceptions
Needs
Needs
Helper
Receiver
Values
Interaction
Values
Feelings
Feelings
Problem
Relationship

- The helping situation is dynamic, i.e., characterized by interaction that is both verbal and nonverbal.
- The helping person has needs (biological and psychological), feelings, and a set of values.
- The receiver of help has needs (biological and psychological), feelings, and a set of values.

- Both helper and the receiver of help are trying to satisfy certain of these needs.

- The helper has perceptions of himself, of the receiver of help, of the problem, and of the entire situation (expectancies, roles, standards, etc.).

- The receiver of help has perceptions of himself, of the helper, of the problem, and of the entire situation (expectancies, roles, standards, etc.).

- The interaction takes place in relation to some need or problem that may be external to the two individuals, interwoven with the relationship of the two individuals, or rooted in the relationship between the two individuals. Wherever the beginning point and the focus of emphasis is, the relationship between the two individuals becomes an important element in the helping situation as soon as interaction begins.

- His needs, values, and feelings, his perception of these, and his perception of the situation cause the receiver of help to have certain objectives.

- His needs, values, and feelings, his perception of these, and his perception of the situation cause the helper to have certain objectives.

- Both helper and receiver of help have power (influence) in the helping situation. However, it is the receiver of help who controls whether or not change actually takes place.

"Working With Counterparts"

OVERVIEW

Often extensionists from outside the local community like Peace Corps Volunteers are asked to work with formally-designated counterparts, usually from the agriculture ministry. This is not always the case, and in many instances the relationship between the extensionist and her co-workers is not clear. Working with counterparts in this context means defining a co-worker relationship with whomever the extensionist is working with, regardless of what is being done, as well as figuring out how to work with formal counterparts.

When attempting to provide a service to farmers indirectly, the extensionist is engaged in a process by which she removes herself from the scene as an intermediary. One strategy for replacing oneself to an extent is defining a way of working that allows a farmer to learn how himself. In this instance, the farmers are the extensionists counterparts.

Another strategy is to focus the motivation and develop the skills of the ministry or other counterparts surrounding the extensionist. In essence, the process is the same as when working with the farmer. However, those designated or most likely to act as counterparts to extensionists are ministry agricultural technicians. These technicians have far different interests, backgrounds, aspirations and motivations than those of small-scale farmers.

The first step in defining a healthy working relationship with a counterpart is to research the counterparts interests, background, etc. Even before this, the impetus of indirect service demands that in every extension activity performed, the extensionist actively seek out and identify the appropriate counterpart, and work toward the establishment of a long-term co-working relationship.

Who, then, is the extensionist's counterpart? Very often, the person is an agriculture ministry or development agency technician. A representative profile of formal counterparts to volunteers in Sierra Leone is included as an ILLUSTRATION to suggest what an agricultural technician may be like. It is extremely important for the extensionist to remember that no two counterparts are alike, and the extensionist's expectations of a counterpart should be based on an understanding of the particular person, not a set of preconceptions.

What can be expected of a counterpart? Perhaps they can be counted upon to be cultural informants, expert in local cultural affairs and language. Counterparts are usually skilled in local or traditional technologies as well (use of the machete, plowing with a bullock, etc). Often, they have special training in some specific technical aspect of agriculture, as well as a certain amount of formal education. Thus the typical counterpart is bi-cultural, bi-lingual and familiar with both traditional farming and modern agriculture. The insights derived from such attributes are rich and useful. (See TOOLS for a representative list of those areas in which counterparts can help extensionists.)

Where possible every extension task should be accomplished with a local co-worker of some kind. An extensionists's habit of counterparting serves to reinforce an expectation of active participation on the part of farmers and ministry co-workers, just as habitual planning with local people conjures up the expectation that they will be consulted in planning changes. Counterparting is a discipline to cultivate.

Planning requires some formal effort when working with others. In working with counterparts, extensionists should engage in some form of "contracting" process. The contract is an agreement as to what needs to be done and who should do what by when. The method and results can be agreed upon as well. Obviously, as a relationship develops these agreements may become assumptions, but they must be defined clearly at first. The contracting process helps make cooperation practical, minimizes misunderstandings, and helps keep work with others orderly and efficient. The contracting process, outlined in TOOLS, can take five minutes when a task is familiar to those involved. However, it must be tailored to local cultural patterns.

Neither counterparts nor American para-professional extensionists are always equipped to do complex technical tasks. There are several ways to help counterparts learn new skills and knowledge. Theoretical sessions can be set up in which the extensionist plays the role of the teacher and the counterpart hears a lecture or reads a technical reference in preparation for discussion with the extensionist. These can even be regularly scheduled and reciprocal, where the roles are reversed.

Practical learning situations can be designed, too. Setting up a demonstration can be the occasion to teach a counterpart how to practice a technical task. Performing gardening or farm tasks with counterparts transforms them simultaneously into "indirect services" in the form of counterpart training. An extensionist gradually develops this other habit of structuring the accomplishment of direct services as learning situations for counterparts by contracting beforehand and transferring responsibility step by step.

The best way to promote and reinforce learning is to ask counterparts to teach others. Extensionists facilitate this by learning from counterparts, as well as by setting up situations where counterparts train farmers in new skills.

Just as with farmers, transferring responsibilities to counterparts and defining the limits of the extensionist's role contribute greatly to the process of working together. The sense of accomplishment which a counterpart can feel as a result of doing something himself serves to motivate him greatly. The organizational benefit of transferring the responsibility for doing a task from a planner (extensionist) to a competent co-worker (counterpart) is that more work can be accomplished. The delegation of specific jobs as on-going responsibilities is a more structured way to capacitate counterparts.

According to experience, increased competency and interest, a counterpart can be assigned as specialist within the scope of work at an extension station. For example, a counterpart who likes to travel and organize things may be a good procurements officer. Perhaps an extensionist notices that her counterpart is quick with numbers, respected by the local community, and less inclined to travel or physical labor. This person could be designated store-keeper. Another technician who is a skilled expert at certain technical tasks or an exceptional teacher may be best suited to train farmers by conducting method/result demonstrations. (See TOOLS for a longer list of possible counterpart specialties.)

The natural consequence of the increased motivation and competence of the extensionist's counterparts is a re-definition of the extensionist's role. Freed from the execution of various tasks, the extensionist can more effectively plan, carry out and evaluate work or branch out into new endeavors. The complementary roles of extensionist and counterpart evolve throughout a working relationship toward the goal of skilled co-workers ready to replace the extensionist as thoroughly as possible. In this way, support for small-scale farmers is institutionalized on a local level.

ILLUSTRATION

(Taken from Sierra Leone Peace Corps Small Farm Project Description)

In Sierra Leone, PCV extensionists work with these formally-designated counterparts:

Ministry of Agriculture and Forestry (MAF) Agriculture Instructors, Agro-technicians (AT) and Field Assistants (FA).

Generally, AT's and FA's come from the following backgrounds:

Agro-Technicians:

- o Form III (third year of high school) or higher;
- o Generally better educated than an FA, but sometimes without very strong English skills, and limited in sciences.
- o Has received six months agricultural training at either an agricultural or a rural training institute. Those who attended Makali or Mange training before 1977 were trained by the Chinese, and their training had a heavy emphasis on swamp development and rice culture. Those attending later had a more general course of instruction, possibly including: rice culture, vegetables, extension, farm management, poultry, surveying, soils, tree crops, and others.

Field Assistants:

- o Secondary school leavers (lower classes of high school)
- o Generally limited English in both oral and written expression
- o Little formal agricultural training; perhaps an MAF farmer training certificate.

These are very general descriptions, as individual backgrounds and experience vary considerably. Take time to find out about your counterpart's background in detail. Often, PCV-AI's have learned too late that their counterparts have skills which could have been useful to local farmers had they been aware of them. In deference to your position as his supervisor, your counterpart may not let you know what she can do unless you ask.

(continued)

Special interests or skills which could be useful at an extension site include:

- store or record keeping
- demonstration swamps
- gardening
- technology using local materials
- palm wine tapping
- rice varieties
- livestock management

Obviously, this is not a fully inclusive list, only a beginning. The particular demands of working in your area (and with you) may require other skills.

TOOL

Partial list of special tasks/roles counterparts can play at extension stations:

a. store keeper

b. procurements officer

c. method/result demonstrator (farmer trainer)

d. mechanic

e. surveyor

f. work company overseer

g. result demonstration supervisor

TOOL

AIDS FOR GIVING AND RECEIVING FEEDBACK
(US Dept Health & Human Services Training of Trainers Manual)

Some of the most important data we can receive from others (or give to others) consists of feedback related to our behavior. Such feedback can provide learning opportunities for each of us if we can use the reactions of others as a mirror for observing the consequences of our behavior. Such personal data feedback helps to make us more aware of **what** we do and **how** we do it, thus increasing our ability to modify and change our behavior and to become more effective in our interactions with others.

To help us develop and use the techniques of feedback for personal growth, it is necessary to undrstand certain characteristics of the process. The following is a brief outline of some factors which may assist us in making better use of feedback, both as the giver and the receiver of feedback. This list is only a starting point. You may wish to add further items to it.

1. Focus feedback on behavior rather than the person

It is important that we refer to what a person **does** rather than comment on what we imagine he **is**. This focus on behavior further implies that we use adverbs (which relate to actions) rather than adjectives (which relate to qualities) when referring to a person. Thus we might say a person "talked considerably in this meeting," rather than that this person "is a loudmouth." When we talk in terms of "personality traits" it implies inherited constant qualities difficult, if not impossible, to change. Focusing on **behavior** implies that it is something related to a specific situation that might be changed. It is less threatening to a person to hear comments on his behavior than his "traits."

2. Focus feedback on observations rather than inferences

Observations refer to what we can see or hear in the behavior of another person, while inferences refer to **interpretations** and conclusions which **we make** from what we see or hear. In a sense, inferences of **conclusions** about a person contaminate our observations, thus clouding the feedback for another person. When inferences or conclusions are shared and it may be valuable to have this data, it is important that they be so identified.

3. Focus feedback on description rather than judgment

The effort to describe represents a process for reporting what occurred, while judgment refers to an evaluation in terms of good or bad, right or wrong, nice or not nice. The judgments arise out of a personal frame of reference or values, whereas description represents neutral (as far as possible) reporting.

4. Focus feedback on descriptions of behavior which are in terms of "more or less" rather than in terms of "either-or"

The "more or less" terminology implies a continuum on which any behavior may fall, stressing quantity, which is objective and measurable, rather than quality, which is subjective and judgmental. Thus, participation of a person may fall on a continuum from low participation to high participation, rather than "good" or "bad" participation. Not to think in terms of "more or less" and the use of continua is to trap ourselves into thinking in categories, which may then represent serious distortions or reality.

5. Focus feedback on behavior related to a specific situation, preferably to the "here and now" rather than to behavior in the abstract, placing it in the "there and then"

What you and I do is always tied in some way to time and place, and we increase our understanding of behavior by keeping it tied to time and place. Feedback is generally more meaningful if given as soon as appropriate after the observation or reactions occur, thus keeping it concrete and relatively free of distortions that come with the lapse of time.

6. Focus feedback on the sharing of ideas and information rather than on giving advice

By sharing ideas and information we leave the person free to decide for himself, in the light of his own goals in a particular situation at a particular time, how to use the ideas and the information. When we give advice we tell him what to do with the information, and in that sense we take away his freedom to determine for himself what is **for him** the most appropriate course of action.

7. Focus feedback on exploration of alternatives rather than answers or solutions

The more we can focus on a variety of procedures and means for the attainment of a particular goal, the less likely we are to accept prematurely a particular answer or solution--which may or may not fit our particular problem. Many of us go around with a number of answers and solutions for which there are no problems.

8. Focus feedback on the value it may have to the recipient, not on the value or "release" that it provides the person giving the feedback

The feedback provided should serve the needs of the recipient rather than the needs of the giver. Help and feedback need to be given and heard as an offer, not an imposition.

9. Focus feedback on the amount of information that the person receiving it can use, rather than on the amount that you have which you might like to give

To overload a person with feedback is to reduce the possibility that he may use what he receives effectively. When we give more than can be used we may be satisfying some need for ourselves rather than helping the other person.

10. Focus feedback on time and place so that personal data can be shared at appropriate times

Because the reception and use of personal feedback involves many possible emotional reactions, it is important to be sensitive to when it is appropriate to provide feedback. Excellent feedback presented at an inappropriate time may do more harm than good.

11. Focus feedback on what is said rather than why it is said

The aspects of feedback which relate to the **what, how, when, where,** of what is said are observable characteristics. The **why** of what is said takes us from the observable to the inferred, and brings up questions of "motive" or "intent."

It may be helpful to think of "why" in terms of a specifiable goal or goals--which can then be considered in terms of time, place, procedures, probabilities of attainment, etc. To make assumptions about the motives of the person giving feedback may prevent us from hearing or cause us to distort what is said. In short, if I question "why" a person gives me feedback, I may not hear **what** he says.

In short, the giving (and receiving) or feedback requires courage, skill, understanding, and respect for self and others.

TOOL

Contracting Process (steps to follow)

a. getting acquainted

b. sharing expectations of each other and the task at hand

c. discussion of expectations to verify or adjust them

d. negotiation of plans, work style and method, and results expected

e. agreement on plans and details of work

f. agreement on roles, responsibilities and when to meet to check results.

NOTE

This process is conceptual. That is, these steps are ideas about reaching understandings and agreeing on roles. In each cultural setting these steps must be done the way custom suggests. The idea of working consciously to clarify assumptions must take a local and acceptable form.

"Working With Groups"

OVERVIEW

The topic of working with groups is mentioned here because it is the manner in which the extensionist can really help small-scale farmers marshall the resources to solve many of their own problems directly. An entire chapter is devoted to it (Chapter Five, ORGANIZING COOPERATIVE ACTIVITY).

ILLUSTRATION

See Chapter Five.

TOOLS

See Chapter Five.

"Working With Cooperatives"

OVERVIEW

When there is an existing cooperative association in the community in which an extensionist works, he is confronted with the problem of providing services to the co-op as opposed to any individual farmer. This is the situation where defining a clear and consistent role is most necessary. A cooperative must stand on its own feet and maintain a clear sense of its own responsibility and ability if it is to succeed. If, in his zeal to help, the extensionist reclaims some of that responsibility or inadvertantly causes the co-op to depend on him for some service, he can easily endanger the self-motivation upon which the cooperative enterprise rests.

There are of course circumstances in which the extensionist can and will provide services directly to a co-op. Giving a cooperative new skills is a tremendous investment in its longevity and effectiveness. However, being ever mindful of both the ease with which dependence relapses and the effort involved in developing competent self-reliance, he must be extremely cautious. Caution takes the form of a careful delineation of a role which is helpful without being indispensable.

In the case of working with cooperatives, extensionists are urged to work always with a cooperative-member counterpart. Most particularly, the extensionist should seek out the nominal and informal leaders of a cooperative to work with them as counterparts.

Chapter Five, especially "Forming Cooperative Associations", is full of specific ways in which extensionists can facilitate the work of groups. The earlier subchapters in this chapter, "Indirect Services", are the guides to use for defining a clear and helpful role with cooperatives.

ILLUSTRATION

See Chapter Five.

TOOLS

See Chapter Five.

"Working With Local Authorities, Government or Development Agencies"

OVERVIEW

Being the intermediary to some extent between farmers and institutions of various kinds, the extensionist finds himself answering to a variety of people at any given time. He must equip himself, therefore, to work effectively within an institutional framework and to orchestrate these different interests successfully. There are several types of institutions he maybe involved in:

- o local authorities
  (community leadership groups, village hierarchy, etc.)
- o government ministry or department
- o development agency project

Each of these institutions has both a formal and an informal structure. It is often said, for example, that the influential advisor of a government minister, while not an offical member of a ministry, is part of a 'shadow ministry' behind the scenes. The informal structure of an institution is not easily apparent to the outsider, but it may have tremendous impact on institutional decisions or events. In dealing with any institution effectively, a fundamental lesson is the fact that real power and influence may not lie with those who have titular position. This is not license to avoid institutional structure, but it is important to know.

Extensionists sometimes do not fit into institutional structures very well. They are the outermost grass-roots level of most government or development agencies, and they tend to be outsiders in the village community. As such they have both considerable license and a large responsibility to become a part of these institutions. There is an emphasis in this manual on research at the level of people's interests. This extends to institutions as well.

The extensionist's first responsibility to an institution is to clearly define its expectations of her. But how can one deal with the often competing or uncomplementary interests and goals of these organizations? Clarifying their interests is a start. Clarifying one's own is the next useful step as an extensionist. Then, usually by a process of trial and error, the extension worker evolves an acceptable accomodation of these interests. It is up to the extensionist to work out compromises among unreconciled interests. Using the principles of good feedback as guides (see "Working With Counterparts"), extensionists can work out with respective agencies and institutions what is possible.

When pursuing the goal of capacitating local institutions, extensionists find it necessary to work within institutional frameworks. The most thorough way of helping people grow is to start where they are, not where they "should" be. This in no way diminishes the aspiration for better things. It is rather, the institutional form of indirect service. Rather than performing a service or solving a problem apart from or for a local institution, the extensionist can focus on the institution itself and the resources the institution has to allocate to the problem. He will concentrate on how to help those resources work better.

On the other hand, the informal structure of a government ministry or village hierarchy maybe more effective than its formal one. It is up to the extensionist to balance use of both. In a government or development agency, it is essential to pay due respect to those in power, but secretaries, truck drivers, carpenters, store keepers, etc. may be those who really get things moving.

On the village scene, there are often informal "craftmanship structures", as well as religious, cultural and social hierarchies which are not readily apparent. As pertains to agriculture work, "craftmanship structures" are systems of "master" or "head" farmers and opinion-leaders in farming work. These are the people through whom significant change can be effected. On the village level and often in other institutional settings, extensionists come to discover that friendship is a powerful thing, and that investments of "village time" spent with people in culturally-defined settings and activities have profound implications for work.

Working within institutions while trying to facilitate growth and change for village farmers is a difficult task. It requires sensitivity, clear values, ability to work out conflicts and give useful feedback, patience and an ability to discern the real catalysts of work while respectfully working along established lines. The rewards of this tight-rope act are large, for institutional changes and successes have extensive effects on the local scene. Respectful efforts from within by the extensionist can help the institutions which affect small-scale farmers become better resources.

ILLUSTRATION

Lydia is a very precise person. She is thorough, prompt and reliable. This is what she expects of others. She has been working in the district for eight months. Her supervisor met her at a reception for her at district headquarters. She has visited him precisely seven times since then, at the end of each month. Each time she comes she asks the receptionist to see him, submits two copies of her typed report, politely asks questions or makes her requests, leaving copies of each for her supervisor, and leaves to return to work. She is very upset today because for the fourth month in a row she has not received what she requested - not even an explanation as to why. In fact, her supervisor is not finding it convenient to even see her anymore for her monthly visits, and the receptionist refuses to tell her where he is or when he will be back. Lydia is incensed!

Rory, on the other hand, is a relaxed sort of fellow, though he is reliable and conscientious in his own way. He has learned by trial and error to dress neatly when visiting the ministry office. He knows the store clerk at the office, who is always there, very well. He sets two days aside for the visit each time he comes (which is when he needs to), and brings money to entertain himself well. He invariably is able to get together with his supervisor, Mrs. Garcia, and her husband. They usually begin at their house and go out to eat and enjoy an evening together. In the course of these affairs Rory is able to talk business with Mrs. Garcia fairly well. Usually his objectives are met - not always - but usually. And he has been told by Mrs. Garcia herself that he can count on her in an emergency.

TOOL

(A partial list of important people in local institutions:)

VILLAGE:

- the most respected farmers
- gifted orators
- religious or cultural leaders
- respected craftspeople or technicians
- persons who advise or affect more visible leaders
- persons who have vested interests in ag work
- persons who have been affected by extension work in the past...

GOVERNMENT MINISTRY:

- secretaries, receptionists, appointments people
- bookkeepers, accountants, store keepers, finance people
- drivers, mechanics, helpers
- carpenters, technicians, artisans
- family and friends of officials
- suppliers of ag products and other vested interests

DEVELOPMENT AGENCY:

- foreign government representatives
- family and friends
- "gate-keepers like secretaries, etc."

FARMER TRAINING

FARMER TRAINING

INTRODUCTION

Farmer training is education that most often takes place outside formal learning institutions. It differs from education in schools because it is geared towards adult learning.

Adult learners are distinct from child learners in four important respects. The self-concept of a child is characterized by dependency, whereas mature adults are self-directed and sufficient in most aspects of their lives. Adults tend to resent educators that fail to take this fact into account. They do not appreciate being talked down to or having their autonomy restricted in ways that show a lack of respect. Since most learning situations are pedagogical, or directed at children, adults often enter training with expectations that they will be treated like children with explicit guidance at each step. When they eventually discover that they are capable of directing their own learning, adults are often spurred on by a strong, emerging motivation to pursue their own educational goals.

A second aspect of adult education that also pertains to agricultural training deals with motivation to learn. In pedagogical learning, teachers decide the content to be delivered to students as well as how and when the teaching is to take place. Adults on the other hand, begin new learning ventures with some ideas of what they will gain from doing so. It is necessary, then, that extension agents discover what it is a farmer wants to learn. This may seem like a natural step and perhaps not worth much emphasis. Nonetheless, failure to accomodate a farmer's interests is a common pitfall. Extension agents often assume the teacher's role and decide for the farmer what she needs to know. The drawback to this approach is that the farmer is apt to resist. Decisions on the content and method of training must be the shared responsibility of farmers and extensionists. The common purpose which emerges from such choices leads to sense of cooperation necessary for learning to take place. A cooperative spirit in adult learning is important because it allows for the sharing of useful knowledge and skills adults bring with them to a new learning situation. Children have less experience to offer. Their classroom activities are characterized by modes of one-way communication, lectures, assigned readings and audio-visual presentations. By contrast, the past experience of adult learners is central to adult learning, so activities such as discussion, role playing, and skills-practice are designed which use that experience as a foundation for further learning. Grain farmers are asked to use their intimate knowledge of seasonal variations of climate to help plan a crop rotation pattern suitable for local conditions. Livestock owners rely on their experience of the difficulties of procuring local feedstuffs as they make selections to design a nutritional feed ration for a flock of laying hens.

The final characteristic of adult learners which sets them apart from children has to do with their time perspective and how it affects their orientation to training overall. Children (and many educators) view pedagogy as preparation for the future. Its focus is the child herself. Graduation is the point at which learning begins to be applied. Adult learning on the other hand is based on the principle that all experience contributes to a learning process that does not end with the closure of a training event, but continues throughout one's adult life. Whereas pedagogy involves grouping and classifying information into subjects to be studied now for use "someday", adult education promotes learning by working on today's problems today. For example, farmer training sessions are likely to focus on composting rather than chemistry, or immunization rather than microbiology. Though elements of the broader subjects come into play in each case, the immediacy of application is the determining factor in choosing the actual content of the training.

Adult learning is not widely practiced in the extension services which are predominant in the developing world. Small farmers in Third World countries are often told what is right ("modern techniques") and what is wrong ("traditional practices"), what to grow (often, cash crops), and where and when to market their produce. This approach to extension promotes dependency on outside inputs and expert advice (self-concept). It denies farmers the choice of what they want to learn (motivation). It does not focus on the Third World farmer's most immediate need to grow more food for her family (time perspective). Nor does it take into account a farmer's accumulated experience of the environment where her crops are grown.

The environment in which small-scale Third World farmer lives is often dominated by uncertain weather, pests, diseases and price fluctuations. Farming in this environment is fraught with risks. Given the choice afforded her in a farmer training system built on adult learning principles, a farmer will avoid as much risk as she can. The extension worker's task, then, is to help the farmer reduce risks whenever possible through a sensitive choice of training methods and presentation of innovations that are appropriate to the scale and type of farming being practiced.

There are several ways to help accomplish this goal. Perhaps the most important is to try and ensure success by promoting only those innovations whose results have been thoroughly tested under local conditions. Extensionists often succumb to the temptation to promote before testing. This may well result in failure of the practice and a disastrous loss of credibility among farmers. The importance of assessing the success rate of specific proposed changes cannot be overemphasized.

A second way to reduce farming risks is to time the sequencing of innovations. Certain changes lend themselves to earlier promotion than others. Those that are easily assimilated into current practices involve less risk than those that are more disruptive of the norm. Examples would be innovations that do not require a radical change in diet or a detrimental shift in the tasks assigned to men and women in the work force; that would avoid considerable retraining; or that would not entail a realignment of a periodic farming cycle. Less costly innovations (e.g. timeliness, seed selection or better spacing techniques) are preferred and in cases where cash inputs are required, risk is reduced if they are readily available to all classes of farmers. Finally, extension agents can build credibility by first introducing innovations that have an immediate payoff as opposed to those that have longer term results (e.g. variation of a feed ration as opposed to cross-breeding).

Sometimes it is easier to promote a 'package' of innovations than a single innovation, because the results of a well-tested package are often much more dramatic. The package approach is also sometimes favored by national planners of extension services ecause it is seen as a more efficient use of limited extension manpower. One major drawback of this technique is that if the package fails, farmers may conclude that all of the individual practices are unproductive. Also, more research and testing are required to adapt a package to local conditions than a single innovation. A package may be more costly because several changes are introduced at once and may therefore be inaccessible to small farmers with limited cash resources. (Note that a package can also be designed that does not include cash inputs.) Finally, the elements of a package may be so closely related that if a single input is unavailable or one component is inadventently neglected, the entire package may be susceptible to failure.

It is not uncommon for extension agents, whether they are working with a package or with individual innovations, to exaggerate the benefits of a new practice. Efforts must be taken to make conservative recommendations. Suggestions include: lower yield estimates to account for incidental factors and less than optimum employment of new practices by farmers; recommend purchased inputs on the basis of maximum return per dollar rather than maximum return per land unit or head of livestock (this favors small farmers who do not profit by volume); encourage farmers to do a limited trial of a new practice prior to wholesale adoption, (for example, on a small portion of land rather than over a whole landholding). Th idea behind making conservative recommendations is that they allow a farmer to improve at her own rate until she reaches a position of sufficient financial security to assume greater risks.

At times, the difficulties farmers have in taking their chances with a particular practice have less to do with the practice itself than with the method of its presentation. Appropriate training methods help ensure that the benefits of change and the specific steps required to make that change are effectively communicated to a farmer in a way she can readily understand.

Examples of different learning styles include farmers who need to see and test results for themselves; farmers who are unsure how to do something; farmers who need to get their information from people they know rather than strangers, and farmers who need ideas expressed in a logical framework, that is consistent with their own worldview. Corresponding training methods are result demonstrations and on farm-trials; method demonstrations; training of master farmers to train their peers; and analogy and storytelling. When an effective match is made between training method and learner, the quality of communication between the extension agent and the farmer increases, trust is established and risk in the eyes of the farmer is reduced.

In sum, farmers seek to avoid risk whenever possible in an occupation characterized by uncertainty. To help farmers change and adapt new conditions extension agents need to make concentrated efforts to reduce risk by rigorously testing results before promotion, introducing easily adaptable improvements before those requiring a more substantial departure from accepted practices, packaging innovations to enhance results, erring on the conservative side in making recommendations, and choosing training methods appropriate to farmers' learning needs. The advantages of combining these risk-avoiding steps include a greater measure of credibility for the extension agent and a more significant degree of control of and participation by farmers in the development process which affects their lives.

"Cross-Cultural Communication"

OVERVIEW

Extension work is carried out through two-way communication. This communication takes place in a cross-cultural environment that is not familiar to a new agent. Sensitivity to that enviornment is important in everything the agent does.

Evidence of cultural differences is readily found in a people's customs and beliefs. Extension agents need to look beyond these more obvious manifestations of culture to subtle distinctions found in language and other means of communication if the desired two-way flow of information is to take place.

Language

Learning to speak the farmer's own language is a goal most extensionists work towards in some way or another. Learning to use a language in a culturally appropriate way may in many respects be a more useful objective. For example, there are expressions in most languages that have special (colloquial) meanings in local circumstances. "An empty sack will not stand up" does not refer to grain bags in a storeroom; it is an expression that says, in effect, "A man who has not been fed wil not work." Proverbs or parables such as this one are very direct forms of communication that can enhance an extension worker's ability to talk effectively with people. Generally, they refer in some way to the most vital aspects of life in a given culture. Systematic questioning about key elements of life, such as food or family, may generate a list of expressions that would prove useful in an extensionist's work with farmers.

An equally important consideration is the way people of a given culture communicate non-verbally. There are often very strict, unwritten rules regarding the gestures one uses, eye contact, and other means of physical communication. An outsider may unwittingly break these rules and cause offense.

A useful way to avoid cultural miscommunication when using a language is to choose a language instructor or interpreter who also serves as a cultural informant. Focussing on parables and non-verbal means of communication in addition to learning grammar and vocabulary will help ensure that culture does more to enhance communication than impede it.

Cultural bias

The participants in any communication exchange bring with them a particular viewpoint or bias that reflects their culture. Peace Corps volunteers doing extension work in technical fields such as agriculture often betray a special bias toward abstract scientific concepts that is not always shared by the people with whom extensionists work.

Experiments have been conducted which show that people in non-literate societies do not share American ("Western") concepts of measurement or geometry.

For example, equal quantities of water were poured into a long, thin glass and a short, stout glass. When asked which glass contained more water, 60% of a non-literate group chose one glass or the other because of its shape. Similarly, two points were marked on a circular table and test participants were asked to connect the points with a straight line ("as if you were carrying a heavy load of wood or water"). Again, roughly 60% of the participants failed to draw the straight line. The implications of a volunteer's scientific bias may not be apparent until farmers confront a task such as measuring fertilizer or digging an irrigation ditch and encounter difficulty. The need for extension agents to consider this type of cultural difference is nonetheless apparent.

Illiteracy has other implications. People who are constantly exposed to the printed page are also frequently inundated with photographic images, not only in magazines and books, but also on television and movie screens, signs and advertisements. The skill of interpreting these images is referred to as visual literacy. Those who are visually illiterate have difficulty with depth perception in pictures, and they have a hard time discovering motion or identity. Other two-dimensional visual effects such as maps or drawings present similar difficulties to those who are not "conversant" in visual language. Thus, an extension worker should use care in choosing visual aids for a training presentation.

Sometimes maps can be constructed as three-dimensional scale models. Again, caution is warranted, in that interpreting scales may not be a common practice in a given culture. The example is often cited of the extension worker who employed a meter long scale model of a tsetse fly in a presentation to farmers on cattle diseases. At the end of the short talk, one farmer raised his hand and thanked the agent for alerting him to the dangers of the tsetse fly. He added that he was, himself, not too worried because he had yet to see a fly anywhere near as big as the one in the agent's hand on his own farm.

Another problem with scale models in particular and visual aids in general, is the unconscious use of negative symbolism. Colors, certain animals or replicas of human beings can all, in certain cultures, have connotations of danger or represent unfavorable omens. The key to avoiding offense in cross-cultural communication is pre-testing presentations with part of the intended audience to determine their suitability in advance. Observers can help an extension agent with suggestions that will make his communication more direct and bias-free.

Appropriate cross-cultural training methods

Just as ignorance of cultural norms can work to block effective communication, understanding the communication patterns in a local culture can open up new, exciting avenues for information flow. Storytelling is a means of communication that has been practiced in many cultures for generations. When used in extension work, stories can serve several different purposes. They can demonstrate drawbacks of specific agricultural practices without singling out any one farmer in front of her peers. This is accomplished by telling the story in the third person about a fictional character and allowing the audience to draw its own conclusions.

Another particularly effective technique is to make analogies to situations within the collective experience of one's audience.

This allows farmers to build upon what they already know as they learn. A rice plant goes through a growth stage at which the stem grows fat just prior to vigorous vertical growth. This is an opportune time to apply nitrogen fertilizer so it is important that the stage be precisely identified. By analogy, extension agents and farmers in West Africa refer to the stage by saying that the plant "gets belly", or becomes pregnant. This type of analogy can be used in the context of a story to help farmers come to a fuller understanding of a new practice or method by incorporating concepts with which farmers are already familiar.

The way a story is actually told can vary with the story's purpose. An extension agent can incorporate peer teaching into storytelling by asking several farmers to tell different parts of a story. This allows for wider participation and generally creates a higher interest level on the part of the audience. An extension agent can also tell half of a story and leave 'blanks' for farmers to complete. This can be used to test and see how much farmers actually retain during training sessions, e.g.:

> "Jose has been working all day under the hot sun. He is tired and is looking forward to the meal and bathwater that will be waiting for him when he returns home. Still, he wants to finish planting his maize field before evening, so he continues, methodically dropping handfuls of seed into holes (how far?) apart..."

In some cultures, stories can even be dramatized with farmers playing different roles. In general, creative use of this medium can bridge communication barriers that would otherwise pose serious problems to outsiders acting as extension workers.

Songs and dances are communication media that are easily overlooked, but nonetheless serve as extremely effective mass promotional devices. Most villages have someone who can sing and put words to music. The agent need only ask this person to prepare a song on a special topic, such as:

> The man who harvested his grain too late
>
> The woman who built a strong fence around
> her garden to keep out pests
>
> The village that had no grazing restrictions

When set to a popular tune with a pronounced dance rhythm, the elements of these stories can rapidly become ingrained in the daily routine of a whole village.

Role plays or spontaneous dramatizations provide an opportunity for farmers to practice skills in problem-solving, community organizing, and teaching methods. They require few props and minimal preparation, can be very lively, and can come very close to approximating real life situations. It is important not to ask farmers to role-play situations that are extremely controversial. To prevent bad feelings from developing, each player should be allowed to de-role by saying how it felt to play his or her character, and discussion among players and observers should be encouraged.

Finally, a wide variety of visual aids can be employed to improve cross-cultural communication. Several cautions have already been mentioned about the limits to the use of graphics models and photographs. Even so, excellent training materials are available (see TOOLS section below) to help extensionists prepare and use visual aids in their work.

The audience

Choice of audience may have clear implications within a particular culture. In some cases, it is a sign of respect to pay separate visits to individual households. Practically speaking, training sessions with individuals may be more effective because they can be paced to meet specific needs. They also make use of a farmer's own fields as a training setting, a more comfortable and relevant arrangement for most farmers.

The advantages of working with groups include opportunities for farmers to step into active training roles with their peers. This helps de-emphasize the extension agent's role as 'expert' and helps ensure that information will pass through culturally appropriate channels.

Conclusion

The techniques suggested for improving cross-cultural communication in this section can be combined in many useful ways. Additional references to consult are included in the TOOLS section below.

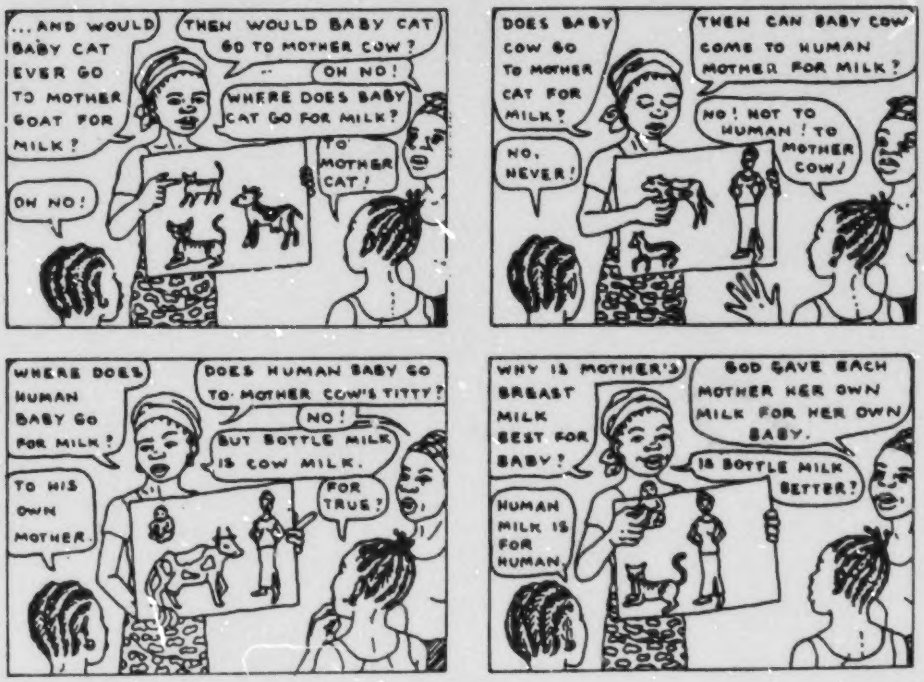
ILLUSTRATIONS

Use of a scale model:

To demonstrate the interrelationship of a system's parts and to solve a problem, a set of irrigated rice paddies are modeled out of clay. Farmers owning connecting paddies are assembled and each is asked to demonstrate with the model how he irrigates his own plots; where he lets water into his plots, where he lets it out, how long and often he lets water flow through his plots, etc. A discussion then ensues about how water not used by farmers upstream must be allowed to pass unimpeded to farmers downstream.

Use of analogy:

This illustration is borrowed from David Werner and Bill Bower's, Helping Health Workers Learn, p. 13-8


...AND WOULD BABY CAT EVER GO TO MOTHER GOAT FOR MILK?
THEN WOULD BABY CAT GO TO MOTHER COW?
OH NO!
WHERE DOES BABY CAT GO FOR MILK?
TO MOTHER CAT!
OH NO!
DOES BABY COW GO TO MOTHER CAT FOR MILK?
THEN CAN BABY COW COME TO HUMAN MOTHER FOR MILK?
NO, NEVER!
NO! NOT TO HUMAN! TO MOTHER COW!
WHERE DOES HUMAN BABY GO FOR MILK?
DOES HUMAN BABY GO TO MOTHER COW'S TITTY?
NO!
BUT BOTTLE MILK IS COW MILK.
FOR TRUE!
TO HIS OWN MOTHER.
WHY IS MOTHER'S BREAST MILK BEST FOR BABY?
GOD GAVE EACH MOTHER HER OWN MILK FOR HER OWN BABY.
IS BOTTLE MILK BETTER?
HUMAN MILK IS FOR HUMAN.

Use of role playing:

When preparing a joint demonstration on fertilizer application a Peace Corps extension worker and her counterpart take turns playing the role of a non-literate woman vegetable farmer. They pose questions to each other and follow advice exactly as it is given to see if they can uncover any areas of cultural bias in their presentation.

TOOLS

Sources of proverbs and parables

When learning a new language and gathering useful colloquial phrases for use in cross-cultural communication, start with vital topics such as those on the following list:

harvest
land
food
work
family
children
money
weather
school
politics

Non-verbal communication:

Observe or ask cultural informants about rules concerning the following types of non-verbal communication:

- o body lanugage, gestures
- o interpersonal space (how close to stand to someone)
- o timing of verbal exchange (is it rude to interrupt someone before they have finished speaking?)
- o eye contact
- o touching (body contact, holding hands, etc.)

Examples of "scientific' bias:

- o measurements
- o notions of time
- o geometry
- o ability to read maps and photographs
- o ability to interpret scale

Culturally appropriate training methods:

- o storytelling
- o analogy
- o proverbs, parables (colloquialisms)
- o skits
- o role plays
- o song and dance
- o visual aids such as
    - models
    - photos
    - puppets
    - drawings
    - posters
    - flannel boards
    - flash cards
    - flipcharts
    - games, puzzles

TOOLS

General considerations in effective communication:

- People learn by hearing, seeing, tasting, smelling, discussing, doing;
- The more farmers actively participate in training, the more two-way communication will take place;
- Does the training method relate to a farmer's own experience?
- Is the information timely?
- Is the skill needed?
- Is the innovation affordable?
- Is the language used free of unnecessary technical terms and abstractions?
- Is the tone of the presentation respectful and pleasant?
- Is the audience comfortable (temperature, seating, visibility, hearing range, etc)?
- Is the presentation well rehearsed and organized?
- Are materials locally available and conveniently placed?
- Is a mechanism in place to make sure the desired message was conveyed in the presentation?

Scale models:

Uses-

- o mapping (three dimensional relief features)
- o demonstrating the relationship between a system's parts
- o reproducing to scale a mechanical part that can be used to practice manual skills
- o planning
- o promotion of innovations
- o problem-solving
- o comparative analysis

Audience-

- o Farmers, counterparts or children (excellent for use in schools)

Planning considerations-

- choice of scale
- choice of materials (cost, availability)
- permanent or temporary construction
- rain protection
- shade
- accessibility (suitable for audience size)
- portability
- capable of being manipulated (encourages participation)
- culturally acceptable

Making and using other visual aids

There are excellent materials available on making and using visual aids. Refer especially to:

David Werner and Bill Bower, Helping Health Workers Learn, The Hesperian Foundation (Post Office Box 1692, Palo Alto, CA. 94302, USA), 1982, Chapters 11-16 and 27.

Pam J. Straley and Vyen Ngoc Luong, Community Health Education in Developing Countries, Peace Corps (Information Collection and Exchange), 806 Connecticut Ave., N.W., Washington, D.C. 20525, 1978, Part III.

ICE Audiovisual Communications Teaching Aids Packet, (P8) (PC/ICE) 1982.

"Farm Visits and Troubleshooting"

OVERVIEW

Making individual visits to farmers' fields and livestock holding areas is the farmer training method most widely practiced by extension workers. As such, it requires special attention.

During farm visits extension field workers are often directly confronted with very pressing problems. On the spot, the extension agent is asked to make an expert judgement about (troubleshoot) something plaguing a farmer's plants or animals. The way the extensionist handles this situation can profoundly affect levels of dependency in the farmer-agent relationship. The trick in successful troubleshooting is to avoid taking on "expert" status.

Th situation an extension worker faces is somewhat like the interaction between a doctor and her patients. Given someone who needs medical attention, the doctor has several choices as to how she responds. She may simply cure the patient with a packet of pills or an injection and send him on his way. Or she may explain to the patient the causes of his affliction and the way the cure works, cure him, and send him on his way hoping to have educated him enough to prevent future illness. Finally, she may refuse the responsibility for the patient's cure, discuss with him the possible causes of the disease, and explain to him ways that he might be able to cure himself. With this the doctor sends him on his way, hopefully more capable of both preventing disease and curing it without any further assistance from the doctor herself.

The three options for the doctor's response are listed in order of decreasing dependency in the patient-doctor relationship. The same options may be available to the extension agent. One difference in the case of the agent is that she is likely not to have the same degree of expert training as most doctors. The consequence, then, is that the extensionist is in many instances not qualified to make the type of expert judgements represented in the first option above. On the other hand, like the doctor, the extension agent may face situations that she is competent enough to handle and that are serious enough in nature as to require direct action - a disease outbreak among a herd of cattle, for instance. In these cases, it is useful for the extension agent to have practical troubleshooting skills.

The first skills to consider are those of observation and examination. It is essential at the outset that the agent possess enough technical expertise to be able to distinguish normal from abnormal conditions. There are lists of signs of plant and animal diseases, for instance, that an extension agent needs to have either memorized or readily available for use. In the field, then, the agent watches for abnormal plant color, lack of uniformity, stunting, wilting and leaf spots. And she physically examines plants for signs of insect feeding. The steps necessary for a thorough examination need to be second nature. The way to make them systematic is to practice them daily and actually record them in field notebooks and worklogs.

The second set of skills involve utilization of resources beyond those of the agent herself. Included amont these skills are information gathering, description and networking. When confronted with a problem in the field, the extension agent needs to know what practices the farmer has used that might have contributed to the problem, what solutions the farmer may have already attempted in order to get rid of the problem, and, in more general terms, how much the farmer actually knows about possible causes and solutions for a given condition. In order to gather this information, the extensionist needs to utilize the interviewing skills discussed in Chapter Two. In some cases, information gathered from the farmer and the extension worker's own skills at diagnosis may still fail to turn up any clearer understanding of a situation. Being able to accurately describe what conditions exist then becomes a crucial skill. The agent can carry a description of a problem to a network of technical support persons, including other farmers, other extension agents, and technical research stations, to solicit their opinions as to what steps should be taken.

A third set of skills is important when the extension agent does have a clear idea of what is wrong with a farmer's crops or livestock. It is in this instance that she is most likely to set herself up as an "expert." Therefore, caution is warranted. The skills involved include dialogue and use of cross-cultural communication techniques. Dialoguing entails the artful posing of a series of questions logically sequenced so as to lead a farmer through the thought process of diagnosing a problem. (See ILLUSTRATIONS). The key is to keep asking open-ended questions. In cases where dialogue fails to work, the extensionist can give a careful, straightforward explanation of a problem, using analogies to other parts of a farmer's experience. Relating a problem to something a farmer already knows will help him grasp the solution as something that is not wholly unfamiliar to him, rather than as something that is entirely within the foreign, even magical realm of scientific expertise.

ILLUSTRATION

Troubleshooting in a poultry extension program:

> Field workers in a livestock extension program directed at poultry farming come together in a district capital for a meeting at which they discuss how they deal with the widespread problem of overcrowding in chicken pens.
>
> Agent A simply tells farmers to build new pens for some of the chickens.
>
> Agent B observes the chickens' aggressive behavior and examines several of them that are afflicted with fungus diseases related to the sanitary conditions in their pens. He asks the farmer how long the behavior patterns and diseases have been present. He explains to the farmer how the behavior and disease are related to the size of the pen and recommends moving some of the chickens to a new location.
>
> Agent C observes the overcrowded pens and tells the farmer that he will return the next day with a suggestion to improve the health of the flock. He goes home and prepares a detailed analogy to help explain why it is important to reduce the number of chickens in the pen. He returns the next day and draws a parallel between the chickens and a large number of people confined in a closed room. He asks the farmer to recall the bad air and the heat he has experienced in closed rooms full of people and says that chickens experience something similar when too many of them are crowded together in one pen. He then recommends that the farmer build a new pen for the overflow.
>
> Agent D is unsure whether overcrowding is the problem or not. He counts the number of chickens in the pen and paces off its size. He asks the farmer to describe the chickens' behavior and makes some brief notes in his field notebook. He visits other farmers whose flocks are healthy and compares the density of the chicken population in their pens. He asks the other farmers if they have observed any of the same sort of aggressive behavior as the first farmer he visited. The other farmers, it turns out, have larger pens for a comparable number of birds and have not witnessed agressive behavior in their flocks. On his next visit to the District Office of the Ministry of Agriculture, he has his suspicions confirmed by a senior extension officer who tells him that the disease and behavior of the problem flock are probably related to the overcrowded conditions in the pens. He returns to the farmer who owns the chickens and explains what the other farmers and the Ministry official told him. The farmer decides to build a second pen for some of his hens.

Agent E observes the crowded conditions and guesses right away that they are the source of the farmer's problems. Rather than tell the farm directly her opinion, she asks several questions that get the farmer thinking about different possible causes of the problem. Some of the ideas the farmer has are shown to be wrong when the extension agent points out exceptions. Others she accepts as possibilities. Finally, the farmer and the agent have narrowed their list down to two or three potential causes. They discuss ways the farmer can test them and arrange for follow-up visits by the agent to see if any of the options have worked. After testing one of the possibilities and finding that it does not change the condition of his birds, the farmer finally determines that overcrowded pens are the chief cause of his flock's illnesses.

Dialoguing with a farmer about crop management techniques:

Question to the farmer: What is the problem with these plants?

Answer: They are yellow and their leaves are withered.

Q: Are all of your plants in the same condition?

A: No, some are much healthier.

Q: What can make plants get sick like this?

A: Sometimes the ground is not good; sometimes there are insects.

Q: Why do you wait until this time of year to plant your garden?

A: Because the crops will not grow well without the rains.

Q: Where do the heavy rains go when they hit the ground here? Do they stay in one place?

A: No, some goes into the ground, but most of the water goes down the hill to the low part of the plot.

Q: How do the plants in the low part of the plot compare to the sick ones you brought me here to see?

A: They are much greener and larger than these.

Q: Why do you think that is the case?

A: It could be because there is more water in that part of the plot when it rains.

Q: How can you help these plants on the upper half of the plot grow better?

A: Give them more water by hand.

Q: How often will you water them?

A: Once every day.

Q: If that is not enough, what will you do?

A: I will water morning and evening, twice a day.

NOTE:
- o The ultimate cause of the problem here is that the garden plot is unlevel. The more immediate problem of making his plants healthy is more important to the farmer. The extension agent in the dialogue is wise to wait until a more appropriate time -- just prior to the next planting season, for example -- to talk to the farmer about levelling off the plot itself.
- o Guard against asking patronizing questions by being thoroughly familiar with a farmer's knowledge.

TOOLS

Troubleshooting tools for crops extension agents:

- -A pocket knife for digging up seeds or slicing plant stems to check for root and stem rots or insects borers.
- -A shovel or trowel for examining plant roots or checking for soil insects or adequate moisture.
- -A pocket magnifying glass to facilitate identification of insects and diseases.
- -A reliable soil pH test kit for checking both topsoil and subsoil pH; especially useful in areas of high soil acidity. Kits using litmus paper are generally unreliable. The Hellige Truog kit is one of the best.
- -Disease, insect and hunger signs guides which can be hand written if conveniently sized booklets are not available.

Troubleshooting steps:

1. Know signs of abnormal conditions; supplement knowledge with additional training if necessary.
2. Assemble useful tools.
3. Observe and examine and consult with farmer.
4. Consult with other farmers and local agriculturalists.
5. Consult outside experts and resources.

Appropriate problem-solving options: (Consider in order)

- -Non-action (Can the farmer handle the problem on her own? Is she turning to an extension agent out of force of habit?)
- -Dialogue leading to farmer controlled experimentation.
- -Preceding a response with time to prepare an appropriate training method.
- -Making recommendations after patiently explaining their rationale.
- -Intervening directly in cases of extreme need and attempting a follow-up at a later date.

"A Guide To Troubleshooting Common Crop Problems", Traditional Field Crops Manual, M-13, David Leonard. C/O ICE. Page 333 and afterwards.

"On-Farm Demonstrations"

OVERVIEW

On-farm demonstrations are effective means of reducing the risks farmers perceive. They are designed to take new innovations out of the 'unreal', scientific realm of the research station and place them firmly within the bounds of a farmer's everyday experience. They are used first to display the results of adopting a new practice and then to give the farmer an opportunity to practice new methods. Both types of demonstrations serve to make clear to a farmer exactly what is entailed in opting for a new farming innovation.

Chapter One describes the research-extension chain. Result demonstrations are the link in that chain at which the active promotion of innovations in farming practices begins. Practically speaking, result demonstrations are side by side comparisons of new and traditional techniques. They are conducted in farmer's own fields or barns to show that experimental results can be reproduced locally. Even though crop farming examples will be used throughout this section, result demonstrations can be very creatively employed by livestock extension agents as well. (See Chapter Three under "Testing Recommendations").

On the surface, a result demo might seem fairly straightforward, but there are actually a number of factors that can serve to reduce their effectiveness. First, the demonstration must produce results that are visible and significant enough to convince farmers to try the new practice themselves. If the practice is, for instance, not fully tested before hand under local conditions, the demonstration runs a high risk of failure.

Second, the innovation has to satisfy the farmer's own criteria in terms of the other risks associated with it. That is, it must promise an immediate return, fall within the farmer's financial means, and suit prevailing cultural patterns, to name but three.

Third, the demonstration should not be run by an extension agent. Farmers will be more impressed by results obtained by their peers than by supposed agricultural experts. Fourth, the farmer on whose land a result demonstration is conducted cannot be extremely wealthy or progressive; nor should the plots receive an undue amount of attention and care. The idea of the demonstration is to show a group of farmers what results can be obtained by a normal farmers under normal conditions. Hence, the choice of demonstration farmer needs to be made with care, the site should be typical of surrounding lands and the crop itself must be managed at a realistic level. Any other arrangement will undermine the demonstration's effectiveness.

In setting up a result demo with a cooperating farmer, it is important to establish who is responsible for the labor involved in maintaining plots and who will provide necessary inputs. In order to make the demo credible, the farmer must do most of the actual work. Inputs are a stickier problem. Ideally, the demonstration farmer will provide his own. Realistically, there may be some instances where the extension service might need to donate inputs as a courtesy for a farmer's cooperation. Two questions need to be considered: Will a gift of inputs have a negative effect on the agent-farmer relationship? How will other farmers perceive such a gift? Whatever the choice, arrangements must be made explicit at the outset.

The next set of practical considerations in setting up a demonstration focus on the plot: its location, its layout and its size. A conspicuous or readily noticeable site is crucial in attracting maximum attention. Locations near roads or footpaths or on the immediate outskirts of a village are ideal. Visibility is the key factor in plot layout. When viewing from the most prominent vantage point, from a road, for example, the traditional and improved plots should be side by side rather than front and back. Signs can be erected to attract further attention and provide explanations of the demonstration. (Note that signs need to meet the visual literacy levels of a majority of the farmers observing the demonstration).

The size of the plot may be influenced by several factors: the labor constraints of the demo farmer and the amount of land she has available; the size of the group that will eventually observe the formal presentation of results; the type of crop; and the overall impression the demonstration is intended to create. In general, the plot should be large enough to be impressive without being to large to take in both parts of the demonstration with a single glance. Rough estimates suggest that one or two hundred square meters would be enough for an effective demo of field crops, with less area required for demonstrations with vegetables.

Throughout the planting and maintenance operations connected with the demo, the farmer needs to be thoroughly familiarized with the what, why, when and how of what is going on. In particular the extension agent should check that needed inputs are prepared and applied on time. The entire process needs to be documented accurately so that results can be adequately explained when the demonstration is completed. Rainfall figures for the duration of the demonstration crop's growing cycle, for example, are of crucial significance.

If the demonstration farmer has been adequately trained during the course of the growing season, she can play a central role in the use of the demo as a promotional tool by providing testimony to a particular method's effectiveness. There may be opportunities early on in the demonstration garden's growth cycle for her to show preliminary results to some of her neighbors. Pointing out differences in plant size and color at various stages serve to heighten interest in a demo as it progresses towards completion.

The main presentation of results should, however, be conducted at harvest time. The farmer should be prepared to help the extension agent through four steps: an explanation of the new practice focusing on amount of labor required, materials needed and changes from traditional methods; a conservative estimate of costs and returns; a question and answer period; and an offer of follow-up visits to other farmers interested in adopting the new practice themselves.

This follow-up often takes the form of a second type of demonstration the method demonstration. Method demonstrations allow farmers to learn by doing. The extension agent physically demonstrates a practice - how to determine a goat's age, for instance, by checking its teeth - and asks the farmer to try the same practice herself. The agent watches and corrects the farmer until she can do the practice properly, and then moves on to the next step of the demonstration.

Only one topic is covered at a time in a method demo. Checking a goat's teeth is one aspect of the topic: "Determining what livestock to buy at an auction." Goat buying and goat breeding are different topics. Each method demo is timed to coincide with the operations farmers are involved with in their individual farming cycles. Planting demonstrations are conducted a week or two before most farmers begin planting; weeding demonstrations are conducted just before the optimum time in a plant's growth cycle to do a complete weeding operation, In this way, a series of method demonstrations serve to span an entire growing season and keep the extension agent in close contact with his clients.

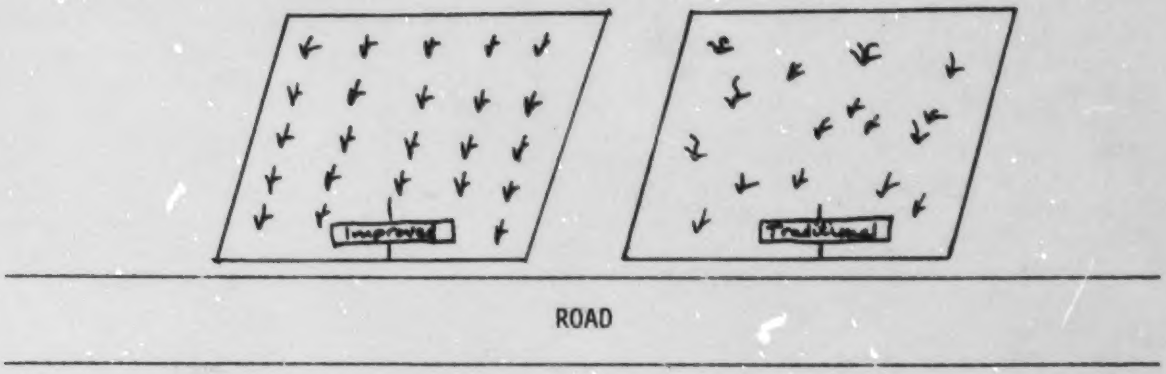
Being successful in conducting a method demo requires close attention to detail. The site and time of demonstration should be selected on the basis of audience comfort. Shade, heat, and sight lines are three important considerations. Materials for the demonstration should be locally available and arranged conveniently for use in the demonstration. The best way to make sure that nothing will be forgotten is to prepare a written plan (see ILLUSTRATIONS and TOOLS). This may include the step by step sequence of the demo itself as well as lists of materials needed and major points to be covered. Once the plan is written, the extension agent needs to rehearse the presentation in its entirety. Only by actually walking through a demonstration can the agent be sure that nothing has been left out.

When actually conducting the presentation, it is important to encourage as much farmer participation as possible. Points at which farmers can be directly involved should be indicated in the written plan. Other means of accomodating farmer learning styles are to continue to relate new material being presented to a farmer's previous experience and to carefully choose vocabulary with which the farmer is already familiar. Some technical terms may prove very difficult to translate without considerable thought beforehand. A good way to check to make sure that the audience is following a presentation is to pose questions to farmers at regular intervals. The demonstrator can also repeat steps where necessary. Finally, it is important for either the extension agent or one of the farmers to summarize the main points of a presentation at its conclusion.

The ILLUSTRATIONS and TOOLS sections which follow can be supplemented by a review of the adult learning principles and cross-cultural communication techniques contained in other sections of this chapter.

ILLUSTRATIONS

1. Layout of a result demonstration (from Chapter 2):



2. Written plan for a method demonstration:

o Demonstration title: Garlic Onions are Easy to Grow for Food and Profit.

o Why is this demonstration important to your audience?

   a. Garlic onions grow easily.

   b. Garlic onions provide a good food addition for the home.

   c. There is an available market for a good crop of garlic onions.

o Materials needed for this demonstration.

Equipment and supplies:

1. Planting plot
2. Hoe
3. Hand rake
4. Stick one foot long
5. Stick four inches long
6. String
7. Pegs
8. One oil tin of well-rotted farinyard manure
9. Garlic onion bulbs

Visual aids and handouts:

1. Pamphlet on "Planting Garlic Onions"
2. Sample onion bulbs

o Presenting the Demonstration

Step by step activities	Key points
I. Mark out the first row.	Use a string and pegs to mark the row. Make sure the string is tight.
II. Measure second row one foot from the first row.	Use stick 1 ft. long to measure spacing.
III. Additional rows are laid out at the same spacing.	Keep rows straight using string and pegs.
IV. Make the planting furrows 1" deep.	Use hoe to dig furrows along the line of the string.
V. Place farmyard manure in furrows to the level of the ground.	Use well-rotted manure.
VI. Mix the manure into the furrow soil.	Prevents burning of the bulbs.
VII. Mark the planting spaces along the furrow.	Use 4" stick to lay out the spaces.
VIII. Plant the bulbs at the 4" spaces in the furrows with the point of the bulb up.	Bulb point must be up. Firm soil around each bulb.

o Summary of points made during the demonstrations:

1. Garlic onions can be planted during the long and the short rains.
2. The planting space is 4" between plants in the row, and the rows are one foot apart.
3. Furrows are dug and filled with well-rotted manure to the level of the ground.
4. The manure is mixed in the furrows with the soil.
5. A single bulb is placed at each 4" space in the furrow.
6. The point of the bulb is upward.
7. The soil is firmed around the bulb for fast germination.

- Plans for follow-up:

  1. Visit the farmers who have indicated an interest in planting onions and assist them as necessary.

  2. Visit again before harvest tiem and assist with marketing the crop.

(Previous ILLUSTRATION taken from: Agricultural Extension Training: A Course Manual for Extension Training Programs, by J.D. Fisner, R.A. Wesselmann, and others; USAID Kenya, 1968 (Reprinted April, 1970: I.C.E., Peace Corps; Washington), pp. 9-16)

TOOL

Guidelines for planning and conducting an effective result demonstration:

1. Choose an appropriate (minimal risk) innovation.
2. Choose a cooperative farmer whose management techniques will be imitated by her peers.
3. Agree with the farmer on who is responsible for labor and inputs.
4. Choose a conspicuous location.
5. Lay out the demo plots for maximum visibility. (Use signs to attract attention.)
6. Choose a suitable size for the demonstration plots.
7. Work closely with the cooperating farmer on managing the demonstration.
8. Keep accurate records (including rainfall) of factors that might influence the outcome of a demonstration so as to be able to accurately interpret results.
9. Show preliminary results of the demonstration to other farmers periodically to help build interest in the demonstration's outcome.
10. Time the final presentation of results to coincide with the harvest.
11. Include in the final presentation the following steps:
    - An explanation of the new practice(s)
    - A conservative estimate of costs and returns
    - An opportunity for the audience to raise questions about the demo
    - An offer of follow-up visits to farmers interested in adopting the new practice themselves.

TOOL

Guidelines for planning and conducting an effective method demonstration:

1. Plan to demonstrate only one topic at a time.
2. Time demonstrations to correspond with farming operations being carried out in the field.
3. Sequence method demos to span the entire farming cycle.
4. Consider ways to make the audience comfortable as they view the demonstration.
5. Prepare a written plan for the demonstration including:
    - a step by step sequence of what will happen in the demonstration
    - a list of materials needed
    - a summary of major points covered in the demo.
6. Incorporate participation of farmers into the demonstration whenever possible.
7. Choose analogies and vocabulary that will help the farmer tie the new information to things she has already experienced.
8. Check periodically throughout a demonstration to make sure the audience is following the presentation by posing questions to them.
9. Repeat steps where necessary.
10. Make sure major points of the demonstration are summarized.
11. Arrange for follow-up visits to farmers interested in trying the new method.

TOOL

A checklist for all types of demonstrations:

I. The subject:

	Yes	No
1. Is the farmer ready to use the improved practice to be demonstrated?		
2. Does he need the skill or practice?		
3. Can he afford it?		
4. Have you selected a title that appeals to him?		
5. Have you planned to teach only one thing at a time?		
6. Have you collected all available information on the subject?		
7. Have you decided which language or vernacular you will use?		
8. Are you certain the practice or skill to be taught is not too difficult for him to learn?		

II. Plans made for the period before the meeting:

	Yes	No
1. Have you arranged the time and date for your meeting?		
2. Have you arranged for the demonstration site?		
3. Will each farmer who attends your demonstration be able to see your actions?		
4. Have you assembled all of the materials you will be needing?		
5. Are you planning your demonstrations to relate to the farmer's experiences?		
6. Have you practiced your demonstration until you can do it to perfection?		
7. Have you developed your demonstrtion using a standard plan?		
8. Did you write down each step?		
9. Have you listed all of the key points?		
10. Are your instructions written in a simple, understandable manner?		

	Yes	No
11. Were signs and/or posters used to direct the farmers to your demonstration?		
III. Plans made for the period during the meeting. Plan before the meeting, check results after the meeting).		
1. Did you present your demonstration with enthusiasm?		
2. Did you act yourself?		
3. Did you talk to your audience?		
4. Was your demonstration explained to the farmers, step-by-step?		
5. Are you certain you were understood.		
6. Did you allow time for questions from the audience?		
7. Did you repeat steps when necessary?		
8. Did you assist the slower persons when they fell behind?		
9. Were faster persons used to assist you?		
10. Were the important steps summarized at the conclusion of your demonstrations?		
11. Were final questions encouraged?		
12. Was reference material handed out at the conclusion of your demonstration?		
13. Were the farmers told where to get additional advice?		
14. Was there a list made of attending farmers?		
15. Was your meeting held without conflict of other meetings?		
16. Were photographs taken of activities at the meeting?		
17. Were records kept of the meeting for future use?		
18. Were credit and recognition given to local farmers who contributed to your demonstration?		

IV. Plans made for the period following the meeting:

	Yes	No
1. When the farmers left the meeting, did they know what to do on their own farm?		
2. Were plans made for the next meeting?		
3. Were they told what material? if any, would be needed for the next meeting?		
4. Were they told to be thinking of the problems involved for the subject of the next meeting?		
5. Was any publicity given to your meeting by the press, news release or radio?		
o Press		
o News Release		
o Radio		

V. Plans made for the follow-up:

	Yes	No
1. Have the farmers changed over to use of the new practice that you demonstrated?		
2. Will you provide additional assistance if requested?		
3. Have the farmers called on you for further assistance in using your new practice?		

"Field Days"

OVERVIEW

Field days are special events. A series of demonstration skits, speeches and other activities focused on a central theme are strung out over the course of a day to promote new practices and bring recognition to successful farmers and agricultural workers in a particular area. The prevailing mood is festive and the atmosphere is not unlike that of a country fair. The point of such a day is to call attention to new and exciting developments in agriculture.

This is done by inviting special guests, cooking a big meal, preparing a day's worth of interesting presentations to watch and take part in and bringing in perhaps some musicians for everyone's enjoyment. It is not expected that farmers leave a field day having learned a great deal of specific information. The meal and the other special features tend to work against that possibility. It is hoped instead that farmers leave with new interests and new concepts of what is possible after seeing what their neighbors have been able to accomplish in their work.

Field days can be used in several different contexts. On a purely local level, a field day can be staged through the collective efforts of a group of agricultural workers and a handful of farmers for other people in town. In this case, it serves as a glorified result demonstration. Its chief function is to generate interest within the community, but it can also work to raise the status of the agricultural workers and innovative farmers in the area.

A second use of a field day moves beyond a single village to neighboring vilages. Invitations are sent to a group of farmers in an area that the extension agent feels would be well-suited for an expansion of his extension efforts. In this case, the secondary benefit goes to the entire host community, which is viewed by its neighbors as being industrious and possessing of special levels of agricultural expertise.

The third situation appropriate for a field day involves Ministry of Agriculture and other government officials and celebrities from out of town. The intent in staging a field day for these people can be two-fold. First, it is a chance for the agricultural workers in town to gain much needed recognition from their superiors. Second, it may be an opportunity for a town to lobby officials for additional services. In the latter case, a serious committment to agriculture is demonstrated during the course of the day, and a well-articulated request for special attention brings the day to a close.

In all three of these cases, it is in the best interests of field day planners to create favorable impressions for their guests. Audience comfort and enjoyment and effective presentations are of utmost importance. The initial consideration is the selection of an appropriate and timely theme to suit the target audience, e.g. improvements in management practices for traditional (locally-and perennially-grown) crops. The next concern is to come up with a list and sequence of demonstrations, booths, activities and other events and feature devoted to the theme. This is followed by logistics, e.g., routing of guests through the course of the day, meals and refreshments, entertainment, and clean-up. A decision has to be made, for instance, to route quests through demonstrations in a single, large group in several smaller groups, or individually. This will depend on how large a turn-out is expected and how many people are involved in organizing the day. For all of the different tasks, responsibilities need to be clearly designated.

Highly orchestrated events such as these are especially prone to being upset by unforeseen problems. Contingency plans should be made for late arrivals, rain or slow moving groups. In general, field days tend to move more slowly than they are meant to. That being the case, it is often useful to choose someone to monitor the progress of the day overall. This person can than be responsible for setting any contingency plans in motion should they prove necessary.

The work involved in putting on a field day can be divided into stages. There are initial meetings at which decisions are made concerning field day topics, guests and the division of responsibilities among planners. These are followed by a period of early preparation during which presentations are rehearsed, invitations are sent out and meetings are held about routing of guests (see TOOLS section). Then come last minute preparations such as cooking, assembling materials for demonstrations and clearing brush from paths where guests will walk. Finally, the field day itself is held: someone greets the guests, demonstrations are given, a big meal is eaten, and someone thanks the guests for coming and sends them home while a clean-up crew goes to work. Follow-up contacts are then initiated and continued over the course of the next few weeks or months.

In everything that happens, the thrust of the day is enjoyment and excitement. To keep the appropriate tempo, then, individual presentations should not exceed half an hour and the entire sequence of activities before the day-ending feast should be completed in under three hours. Note that sufficient time is necessary at both the beginning and end of the day for guests to travel to and from their homes. This often means that special accomodations - water, shade, chairs - will be necessary to deal with extremes of weather.

ILLUSTRATION

A field day schedule:

POST HARVEST TECHNOLOGIES

Schedule

9:00-10:00a.m.	Guests arrive from nearby villages.
10:00	Welcome by master of ceremonies.
10:30	Guided tours of demonstrations - Guests will be escorted in three groups around the village to observe the first of three sets of demonstrations: I. Threshing and milling of grains II. Drying of grains, vegetables and fruits III. Storage of grains, vegetables and fruits
11:15	All three groups will meet for refreshments under the large cotton tree.
11:45	Groups will observe their second set of demonstrations.
12:30	Groups will observe their third set of demonstrations.
1:30	A meal will be served under the large cotton tree.
2:30	Closing remarks by the master of ceremonies

TOOLS

- A list of responsibilities to be covered by field day planners:
    - Invitations
    - Clear paths and standing/sitting area around demonstration sites (see below)
    - Set up and moving of benches and chairs
    - Master or Mistress of Ceremonies
    - Guides
    - Demonstrators
    - Refreshments and water
    - Troubleshooting
    - Entertainment
    - Meal preparation
    - Clean-up
    - Follow-up

- See Chapter Six MANAGEMENT for planning tools.

- See the previous subchapter for TOOL checklist for all kinds of demonstrations

TOOL

Considerations in preparing a route for guests:

- Clear obstacles such as roots, stumps and rocks and cut back over-hanging branches.
- Cut the trail wide enough for two people to walk side by side.
- Clear an area around each demonstration larger than that which would fit the expected tour groups comfortably.
- Avoid trails that double back on each other in an "5" pattern so that demonstrations compete with each other for farmers' attention.
- Avoid steep and tiring trails.
- Build sturdy bridges over streams or marshy areas.
- Avoid areas that do not drain well.

"Mass Media"

OVERVIEW

Vehicles of information normally classed under the heading of "mass media" -- television, radio, newspapers, magazines, newsletters -- can be used by extension agents. Usually, Peace Corps extensionists involved in mass communication efforts adapt other training methods to a larger audience size. Role plays and dramas are shifted from verandahs and village clearings to stages where a hundred or more people can view them simultaneously. Poster designs originally intended only for local use can prove successful enough at calling attention to some new aspect of agriculture to warrant mass production and distribution through Ministry channels over a much wider area.

Media within the realm of possibility for extension work can use include periodicals, ag fairs and radio. Periodicals can be used as discussion starters in farmer meetings where at least a portion of those present are literate. Agricultural fairs are conducted in many developing countries to encourage agricultural development. Volunteers can make use of these fairs by encouraging some of the farmers in certain areas to compete for prizes in farm produce competitions. Such prizes can be a valuable form of reward and recognition for a farmer's achievements. Radio provides the most exciting opportunity of any of the standard mass communication devices. This medium can be put to use as a simple information vehicle - to relay announcements of upcoming farmer meetings in an area, for example, or it can be employed in more creative ways. Extensionists with experience in radio broadcasting and production may be able to work within Ministry channels to produce simple and yet highly effective advertisments on the radio for new techniques Serialized skits, songs and humorous stories are very popular in countries where national radio stations receive widespread attention.

ILLUSTRATION

A serialized radio dialogue promoting new agricultural practices:

(Suggestions: Keep the format of the dialogue simple, and do not alter it until the advertisment has caught on. Use the same actors' voices throughout the serial. Use the same piece of music throughout the serial as a theme song.)

Tape 1 (January 15 - February 15)
Popular song is heard, ten seconds. Music fades.

"Juan, aren't you going to the fields today to clear a new patch of ground for planting this year?

"No, Felipe. I won't need to clear away brush this year. Since I started applying cow dung and grain husks to my garden, I haven't had to move to a new location everytime the rains come.'

"You mean cow dung and grain husks can help your garden?"

"Yes, you mix it in the soil as you plant and the ground yields better harvests."

"Dios mio, Juan! I don't know where you get these ideas!"

Music comes up as radio announcer intones: "Contact your Ministry of Agriculture extension agent today."

Music up full.

(60 sec.)

Tape 2 (February 15 - March 15)
Popular song is heard, ten seconds.
Music fades.

"Juan, aren't you going to the fields today to set traps for the rodents eating our garden?"

"No, Felipe. Last year I built a fence around my garden and it is keeping the animals away very effectively."

"You mean the fence you built is strong enough to keep all the rodents away?"

"Yes, I used wire to build the fence and rodents cannot graw through it?"

"Dios Mio Juan! I don't know where you get these ideas!"

Music comes up as radio announcer intones: "Contact your Ministry of Agriculture extension agent today."

Music up full.

(60 sec.)

Tape 5 (May 1 - May 30)

"Juan, aren't you going to the market today to sell your vegetables?"

"No, Felipe. I dried many of my vegetables this year in the sun and am keeping them for my own use rather than selling them."

"You mean drying vegetables in the sun can keep them from spoiling quickly?"

"Yes, by cutting them thin and drying them on racks I can keep them for up to three months."

"Dios Mio, Juan! I don't know where you get these ideas!"

Music comes up as radio announcer intones: "Contact your Ministry of Agriculture extension agent today."

Music up full.

(60 sec.)

TOOL

List of mass communication techniques suited to the extension agent's role in working with small farmers.

- Role plays and skits for large audiences.
- Posters for widespread distribution.
- Culturally appropriate signs in a few strategic locations.
- Use of periodicals in discussion groups.
- Agricultural fairs.
- Radio serials.
- Newsletters.

P-8 Audio-visual Communications Teaching Aids, P.C. ICE.

ORGANIZING CO-OPERATIVE ACTIVITIES

ORGANIZING COOPERATIVE ACTIVITY

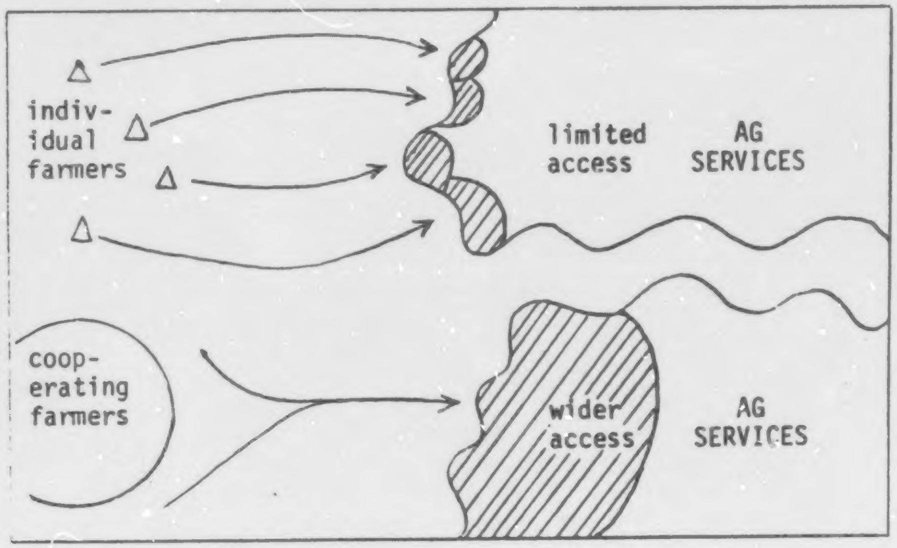
INTRODUCTION

Extension work can help farmers participate more competently in the process of change in various ways. By providing indirect service, extensionists help farmers link up directly with supportive resources. Through farmer training, farmers learn new skills, knowledge and practices in order to increase their agricultural options.

Organizing cooperative activity, on the other hand, can help farmers on a different level:

- Cooperation is a form of capital farmers do not normally have alone, with which they can address bigger or more complex problems and gain access to a wider range of supportive services.
- Cooperative activity (especially formalized cooperation) institutionalizes changes (new skills and access to new resources) in the form of work companies, pre-cooperatives, cooperatives, etc.

ACCESS TO AG SUPPORT SERVICES



Cooperative activity concentrates and focuses the most readily available and useful resource each small farmer has - personal skills and resources. Cooperation transforms the personal resources of each person into powerful tools for change and growth. The process of cooperating can transform the people themselves too. Because extension workers wish to help small-scale farmers solve practical problems and grow as people, organizing cooperative activity is a most important skill.

Organizing cooperative activity must be done with great respect for local institutions, customs and cultural norms. Cooperative activities can affect the local balance of influence and authority. The decision to organize should be made by local people themselves for their own purposes. Small-scale farmers can find themselves exerting new-found influence on local events when engaged in organized cooperation. As the most numerous producers in the agrarian economics of developing countries, small-scale farmers need to participate actively in local ag development and change. It must be done sensitively, however.

Institutionalizing change is a very slow process. Appropriate levels of cooperation are planned for various stages of development. At all times, extensionists strive to organize farmers in order to develop collective problem-solving ability, a long-term goal.

There is a wide range of cooperative activity which farmers share. They vary from informal endeavors between family members or friends to formal institutions involving many farmers. A list of the common kinds of informal and formal cooperation among small-scale farmers includes:

informal	sharing a shovel
	working together on each other's farms
	sharing water rights
	joining a seasonal work company
	renting a truck together to market a crop
	renting and stocking a storage building
formal	joining a dues-collecting farmers' co-operative

Any group of people engaged in cooperative activity goes through a process of group growth. (In Chapter Five, under "Forming Associations" there is a TOOL describing the stages of group growth in detail).

When extensionists organize cooperative activities, they must understand and guide this process. Extensionists can tell the difference between a collection of individuals, a group and an organization. Each has a specific purpose, requires an unique level of cooperation among farmers, and calls upon a special skill on the part of the organizer. Managing group dynamics is an important part of organizing cooperative activities.

Organizing must be distinguished from both "facilitating" (providing indirect service) and management (planning, carrying out and evaluating work). Facilitating is linking farmers and resources directly -- solving problems. Organizing, on the other hand, has two purposes, -- creating capital and insitutionalizing change. The avowed goal is to create something which lasts. What farmers do with it is up to them.

Bringing farmers together, an extensionist must employ several skills underlined below: In order to understand the collection of individuals who seek to cooperate, the extensionist must assess "self-interests" and local problems. When these interests and problems are analyzed, leaders and the extensionist can define unifying or common issues, to act upon cooperatively. The issues must then be transformed into cooperative tasks which farmers agree to do together. Once it becomes clear what needs to be done, the extensionist helps farmers define roles and agree on responsibilities so each task will be done.

In order to discuss these issues and decide how to act, the extensionist develops skill in planning and carrying out meetings and managing group dynamics. So that local people learn organizing skills, an effort is made to train leaders throughout. If the opportunity presents itself, an extensionist may help farmers form associations or co-operatives, the ultimate goal of organizing.

In order to initiate cooperative activity which is not dependent on the organizers, the extensionist's role must be clearly defined and strictly limited. Organizing is a very strict and disciplined form of helping. The extensionist must never make a decision for participating farmers and insistently return the responsibility for each task to the farmers themselves. As an organizer, the extensionist can only consult or assist farmers.

Limiting and defining the helping role like this is never easy, especially because this stance contradicts the persistent expectation that extensionists perform direct services. Organizing is said to follow after direct and indirect service and farmer training for this very reason. The time must be right. Farmers must have the skills and interest to be self-reliant. The extensionist and her farmer friends must work long and hard to change the expectations which colonial extension activity created. Organizing for the future can then begin.

Volunteers who have laid this groundwork for successful organizing can seriously address the issue of working themselves out of a job during the second year of their tour of service. On arriving in a village, an ag extension volunteer represents a new village resource or capital, which can be institutionalized by focusing existing farmer resources through organizing. The beneficial innovations accepted by farmers in a village can be institutionalized too by organizing cooperative activity.

Organizing cooperative activity can lead to greater farmer access to support services. Beneficial change can be institutionalized and two-way communication between researchers and farmers can be greatly improved. Organizing is therefore an extremely valuable extension skill.

"Assessing 'Self-Interest' and Problems"

OVERVIEW

Whether an extension agent is working with a particular existing group or has been asked to help a group organize itself, or has identified the need for a group in a community in order to accomplish a certain goal, the first step in each case must be an assessment of people's interests and problems. This assessment identifies the motivations for cooperative activity. In the case of a simple form of cooperation like sharing a tool, the assessment effort is limited to a quick check to make certain the tool is available, the people involved are agreeable, and a way of sharing can be agreed upon readily.

However, as the type of cooperative activity becomes more ambitous, there is an increased need to study the unique interests of potential participants. Each farmer has a particular set of interests which motivates her to act. People cooperate for a variety of reasons, hut, generally speaking, everyone participates in those activities from which they derive some benefit. This is a definition of self-interest. Therefore, cooperative activity must meet the needs of those who participate in order to succeed.

Just as important, however, is an assessment of the problems facing the community. Problems often lend themselves more easily to one type of solution than another. For example, when heavy rains threaten the tiny rice seed beds which thirty farmers individually have made on their own farms, the best solution to the problem is to ask each farmer to open the dikes of his or her rice field which lead to the drainage canal, or, if it is a real emergency, to rush around and do it oneself.

On the other hand, if a small common milking parlor is to be built for a village goat project, it makes sense to organize the livestock farmers to mix and pour the cement floor, build the walls and raise the tin roof together. In the second instance, the scope of the problem is greater than any one farmer's resources, and the benefit of the effort is to be shared among the farmers involved. Studying the nature of community problems, the extensionist can determine whether the effort involved in organizing cooperative activity is worthwhile, and whether cooperative effort is the best means of achieving the solution to the problem.

In order for cooperative activity to work at all, it must be both concretely linked to participants' interests and clearly the most practical way to solve a pressing problem. Otherwise, the barriers to cooperation - mistrust, rivalry, competing interests overwhelm the best of efforts. Cooperation, as inspiring and powerful a force as it is, relies entirely on the motivation of each individual participant. Without focused, committed personal motivation, cooperative efforts fail.

As part of this initial assessment, it is important to pay particular attention to hierarchical structures and interest groups already functioning within a community, for several reasons. There may already be a group which addresses the problem the extensionist and people have identified. Perhaps energy should go to enhancing this effort before embarking upon a new one. Secondly, without a stamp of approval from interest groups and leaders, a new cooperative activity cannot progress very smoothly and probably will not outlast the extensionist's presence in the community.

Knowing the other cooperative activities going on in a community, the extensionist can estimate the amount of competition there will be for participants' time. Also, existing groups are the building blocks for cooperation now and for more sophisticated forms of cooperation in the future. Often the easiest way to solve a problem is to follow the local pattern of activity. (A representative list of interest groups in rural communities is included as an ILLUSTRATION and TOOL following this INTRODUCTION.)

Almost every group at work in a community will have leaders. As the extensionist is observing groups as they work, she should discern who leads them and how that leadership works. This yields clues as to how to organize the leadership of a new cooperative activity, and identifies potential leaders who might be able to participate in the new work.

Finally, it is important to remember that things change. People's interests, the membership, existence and even the leadership of groups are dynamic and open to change. Initial assessments must be constantly updated to gauge these shifts.

ILLUSTRATION

Field notebook entries made while assessing the people's interests and problems in a community where a cooperative peanut marketing venture is contemplated:

JUNE 16: MET WITH VILLAGE HEADWOMAN KIM. SHE SEES THE VILLAGE'S MOST PRESSING PROBLEM TO BE DISTANCE TO THE REGIONAL MARKET TOWN. TRANSPORTATION IS INADEQUATE. SHE IS A COMMERCIAL PEANUT PRODUCER & OPERATES A SMALL DRY GOODS STORE.

JUNE 17: MOHAMMED, MASTER FARMER, IS ALSO CONCERNED ABOUT REMOTENESS. HE HAS NO OTHER LIVELIHOOD THAN FARMING. HE WOULD GROW MORE MARKET VEGETABLES IF HE KNEW HE COULD MARKET THEM. HE IS PROUD OF HIS STATURE AND SKILL, AND SUPPORTS A LARGE EXTENDED FAMILY.

TRAVELLED THE ROAD TO THE MARKET ROAD. 17 ROUGH MILES. LITTLE TRAFFIC. THE MARKET TOWN IS CONNECTED TO THE HIGHWAY & THRIVES. GOOD PEANUT & VEGETABLE PRICES.

JUNE 18: TALKED WITH LIN, VILLAGE TRUCK DRIVER/OWNER. HE ALSO GROWS PEANUTS. HE HAS STOPPED TAKING HIS OWN PEANUTS TO MARKET - PETROL TOO EXPENSIVE FOR IT TO BE WORTHWHILE. HE'D LOVE TO BE BACK ON THE ROAD THOUGH.

RAN INTO THREE OTHER FARMERS IN THEIR PEANUT FIELDS. LOOKS LIKE A GOOD HARVEST. ONE MENTIONED HOW A GROUP OF VILLAGE PEOPLE POOL MONEY FOR SUPPLIES FROM THE MARKET TOWN OCCASIONALLY.

TOOLS

Existing groups in a community may include:

- village elders
- elected local authorities
- a hierarchy among women (or men)
- an agricultural decision-making group
- male and female societies or clubs
- informal work groups
- religious organizations
- educational organizations
- thrift, credit or savings societies
- parent-teacher associations
- self-help associations
- farmers associations
- health committees
- youth groups
- marketing cooperatives

TOOL

A partial list of problems that lend themselves to cooperative solutions:

- marketing ag products
- transporting ag products or inputs
- grain storage
- irrigation, wells (water systems)
- farm land development
- building construction
- other public works projects (bridges, dams, etc)
- wholesale inputs procurement

"Defining Issues and Tasks"

OVERVIEW

As a result of assessing the problems and personal interests of members of the community, the extensionist begins to discern the more pertinent themes which dominate the situation. He begins to see how these concerns overlap or fit together, how the various views of a community problem shed light on those things which a group may be able to address. The extension worker analyzes personal interests to see if there are any common concerns. These issues are really the meeting point between a big problem and personal interests. For example, a grain farmer has a strong sense of responsibility for and pride in maintaining and storing clean, servicable tools. His village is wondering whether to build a community storage building for tools and seed grains. The store can become a strongly-supported issue to the farmer, because a community problem and several personal interests are addressed by the store.

Once motivating issues are identified, they must be transformed into action plans. An action plan is a series of tasks which a cooperating group defines with the help of the extension agent. The tasks are the steps in a practical problem-solving strategy. Large problems, like "inflation" or "lack of income", are often overwhelming in scope and size. Their very scale paralyzes people and reinforces fatalism and powerlessness. When large problems are broken down into motivating issues and even further into concrete tasks, however, they become manageable.

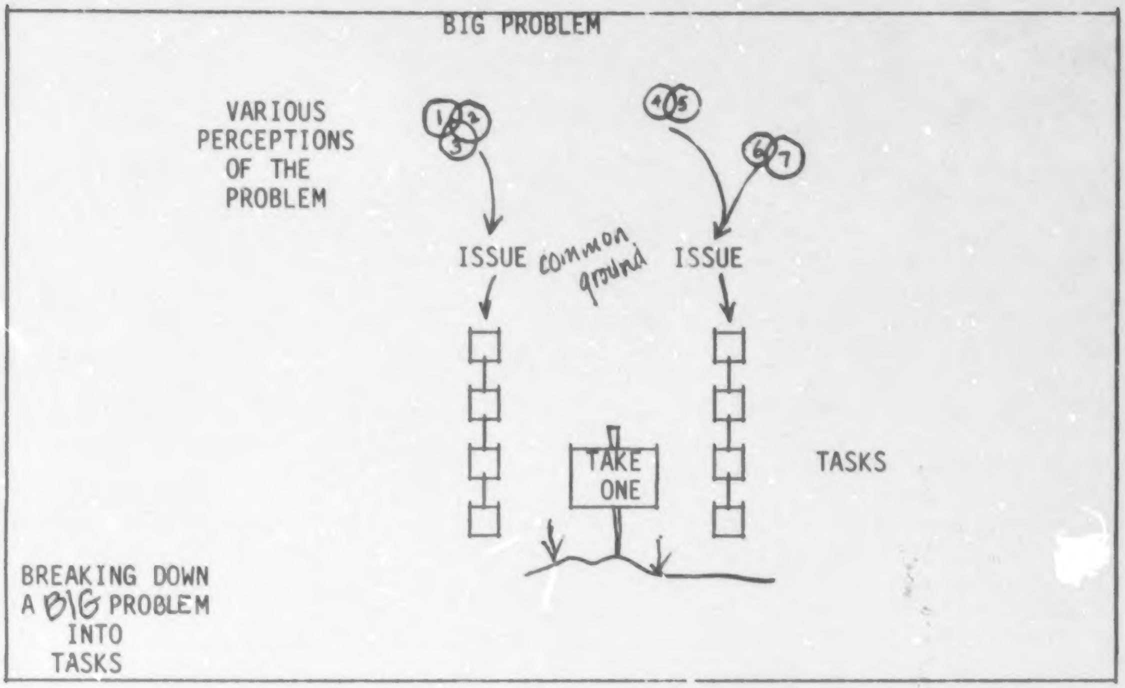
The extensionist helps farmers or community people spell out tasks which are:

immediate
(something which can be addressed right now)

specific
(something you can almost literally put a finger on)

realizable
(within the capacity of a normal person to do)

unifying
(something which brings people together)


BIG PROBLEM
VARIOUS PERCEPTIONS OF THE PROBLEM
1
2
3
4
5
6
7
ISSUE
common ground
ISSUE
TAKE ONE
TASKS
BREAKING DOWN A BIG PROBLEM INTO TASKS

The manner in which the extension agent facilitates this process appears fairly informal. But, when organizing, the extensionist tries to make every conversation count. Each encounter with community people is an opportunity to bring an issue and tasks to light. While working to make conservations a forum in which problems are reduced to more manageable issues, the extensionist must seek opportunities to bring people together to share their emerging common concerns. "Did you know that Mrs. Smart feels the same way you do?" and "Have you checked with anyone else on your street?" are questions the organizer asks at this point. In Chapter Four there is an illustration[*] of the process of directed questioning by which an extensionist can help a farmer reach a conclusion by following the logic of a series of questions. That technique can be applied here to good effect.

As issues are being clarified and communicated to various people in a community some specific tasks emerge and exert their influence on people. A cooperative activity is waiting to be born. When people feel a need to meet together to verify the issues, it is time to set up an action plan and to assign tasks to be completed.

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[*] See "Farm Visits and Troubleshooting"

ILLUSTRATION

PROBLEM: Hungry-season rice shortage

PERCEPTIONS: Kadi says she has two bushels of rice left but she knows it will run out before the harvest, and she has 12 people to cook for each day.

Momodu worries because he is trying to complete his new house before the rains come again. He must find enough rice to feed the work crews or he won't finish on time.

Samba knows that her rice will be ready to harvest in two months. She doesn't know what will happen. If she eats all her rice, she won't have seed for next planting, not enough to pay her son's school fees.

Ishmael is the village chief. He knows that if the hungry season shortages are bad, he cannot expect repayment of seed rice and money loans he extended to farmers last season. He also will be affected.

POSSIBLE ISSUES: The need for higher yields or double-cropping (shorter duration varieties)

The need for better storage facilities

POSSIBLE TASKS: ISSUE the need for higher yields

large TASKS

1. Exact calculation of current yields and varieites
2. Troubleshooting yield-limiting factors
3. Soil test
4. Identification of locally-tested higher-yield variety
5. Meeting to present findings and decide what to do
6. Cooperative procurement of seed and management practices
7. Method/result demo for all farmers on head farmer's field.
8. Use of seed on farms
9. Cooperative seed procurement

(continued)

Small tasks

- agree on variety and time frame
- collect pledges (price of seed) from farmers
- verify collection at meeting
- arrange transport for seed and buyer
- make appointment with seed seller
- procure seed and return
- distribute seed at meeting
- rest and recuperate

TOOL

1. TASK CRITERIA FOR COOPERATIVE ACTIVITY Tasks must be:

   - immediate
   - specific
   - realizable
   - unifying

2. GUIDELINES FOR FOCUSING CONVERSATION ON ISSUES AND TASKS TOWARD ORGANIZING COOPERATIVE ACTIVITY:

- Concentrate on asking open-ended questions about the general problem you and the farmer are concerned about.

- Help the farmer see that the problem is common to other community members. Try to explore with her the extent to which the problem, especially a specific issue she holds as important, is shared by others.

- Focus on what this particular farmer thinks should be done and especially on what she would be willing to do to help.

- Test the farmer's interest in pursuing the issue by ending the conversation by asking some form of commitment pertaining to the issue at hand. ("Can I see you tomorrow again about this?" "Would you see if we could chat with your neighbor about this tomorrow?")

- When the time is right, enlist the farmer's support in contributing to the contemplated cooperative activity.

"Clarifying Roles and Responsibility"

OVERVIEW

As group activities come together, their complexity usually comes into focus gradually. The previous ILLUSTRATION presents one level of tasks which are not specific enough so they are broken down again into even more concrete, realizable steps. As this long list of details unravels, the question of organization and keeping track of things comes to mind. How does a group make certain that a long list of tasks contributing to a larger cooperative activity is completed?

Essentially this a matter of planning. However, it is a special kind of group planning in which a variety of people are asked to carry out a number of different tasks. First of all, the list of tasks to be accomplished must be as specific, detailed and complete as possible. Participants have to agree that this list is exactly what they wish to do. The method by which each task is accomplished must also be clear.

Having finalized the list, the organizer begins a process of contracting, similar to that described in Chapter Three under "Working With Counterparts". To apply it to a group situation, the organizer begins by helping the participants clarify the purpose of their cooperation and the overall goal of their work. Then the participants might share expectations of their roles, what is to happen, and how things are to be done. In a discussion following, carefully monitored by the organizer/extensionist or a trained counterpart, various expectations are verfied and adjusted to fit together into a rough work plan. The work plan is finalized through negotation of the specific points in the work plan - what is to be done, by whom, how and when. At this point people should match their skills and interests with the tasks listed to do. The organizer asks participants to review these details and agree on them and the overall plan of work. Finally, the organizer asks each person involved to commit herself to a specific role and set of responsibilities within the cooperative activity. A time is set to meet to do the work, and another time is agreed upon to evaluate the results of the work.

The formula for this process is fairly simple. But the effort involved in group decision-making of this kind, especially among those new to this way of working, is enormous. It requires great patience and many hours of preparation. Participants must be ready to do this, and issues/tasks must be clear enough beforehand for this contract to evolve smoothly.

This rigorous process of role and responsibility clarification is important because unfamiliar forms of cooperation are often mistrusted until proven profitable to participants. Even in villages where family and communal cooperation is a norm, it is hard for individuals to perceive the value (for them) of other common efforts. Traditional cooperation has proven its usefulness over generations. If a West African farmer shares his bounty at harvest with his extended family and chief, the odd lean year will not be as problematic, because they will reciprocate. The pattern of contribution and return is well-understood and trustworthy in this instance. But cooperative efforts outside the strict circle of tradition require a special investment effort.

Furthermore, cooperative activities are sometimes poorly organized (especially by impatient or inexperienced outsiders). These result in disappointments which reinforce suspicions about common efforts. By rigorously planning the manner in which participants play their parts, the organizer helps allay these fears and demonstrate the fact that everyone is contributing in an equitable way. The plan becomes a reference point for mediating disputes or clarifying misunderstandings. It also serves the practical purpose of keeping track of who does what, when.

It is here, during the discussion of tasks and roles, that the extensionist must learn to say "NO". The organizer's task is to organize cooperative activity. Participants do the cooperative tasks. If the organizing has been successful to this point, the extensionist's role is to remain in the background, to depart from center stage. The extensionist takes total responsibility for assessing the need for cooperative activity. She assesses interests and problems, identifies common issues with people, begins to see tentative tasks emerge, and, most importantly moves people toward coming together to decide on tasks, role and responsibilities. At this meeting the organizer should be behind the scenes, if her organizing efforts have been successful. When farmers look to her to solve the problem they themselves consider addressing though cooperative effort, the extensionist says "NO".

For the most part this set of agreements is made in discussions with participants. The organizer plays the role of bringing people together and asking the questions which stimulate group decision-making. In rural communities in developing countries the community meeting is a familiar forum for such discussions. The importance of the spoken word in situations like these is due to the fact that literacy is not often widespread and oratory is a time-honored skill. Oral contracts, witnessed by others, are often the most legal and binding commitments in village communities. The organizer must learn what the most appropriate form of agreement is in his situation, and conform to it. The cultural appropriateness of contracts gives them added weight and influence.

ILLUSTRATION

Excerpt from a conversation between Bill Moyers, TV interviewer, and Myles Horton, founder of Highlander Research and Education Center in Appalachia:

> MOYERS: Was this place, Lumberton, North Carolina, when the four guys came after you with the guns and you made your best speech?
>
> HORTON: Oh, yeah, that's-I had some experiences there, that was very educational to me.
>
> MOYERS: What happened that time?
>
> HORTON: I was trying to get those people to make a decision. Because the big thing is to get people to have confidence they can make decisions. I was doing pretty well, so they made all the plans, and committees were set up, and they'd made all the decisions. I just sat with them, and encouraged them to make decisions, but it got pretty rough. And it looked like it was about to fail. The committee got pretty desperate, they weren't so sure of themselves. So they came up to my room one time and said "We got to talk about plans." And they talked it over and said, "Myles, you got to tell us what to do. We've just gone as far as we can." and I said, "You've got to run this union, so you might as well learn. You learn when it's easy, and you learn when it's rough. And if you don't learn to make tough decisions, you know. I learned. I get the learning experience you don't, I need it less than you do. You need the learning experience. I can get along without it, you know. So you've got to make the decision." They said, "But there's 2,000 people involved in this decision." And I said, "Sure, that's why you, you know, it's rather important decision but you've got to make it. " And one guy say, you know, "You've gotta, you gotta make this decision." I said "No, no, I --" And he says, "Now you're not at Highlander running a school, you'v got to do this." So I said, "No, you've gotta make it." So he just pulled -- reached in his pocket and pulled out a gun, and he said "You sonuvabitch make this decision right now". (laughs) I came nearer to going back on my principles of education than I ever did in my life.
>
> MOYERS: But did you stick firm?
>
> HORTON: Yeah, I did, I said "Well", I said you know, "You can win this round, but you still won't know how to make decisions after you get through."

TOOLS

1. See Chapter Six under "Planning" and "Carrying Out Plans".
2. See Chapter Three under "Working With Counterparts".
3. See the following subchapter "Meetings" and "Group Dynamics".

DECISION-MAKING PROCEDURES

(from US Dept of Health & Human Services, Training of Trainers Manual)

Many decisions are made in groups before full consideration has been given to the effects these decisions will have on other members. Some people try to impose their decisions on the group, while others want all members to participate or share in the decisions that are made.

- Does anyone make a decision and carry it out without checking with other group members (self-authorized)? For example, does anyone decide on the the topic to be discussed and immediately begin to talk about it? What effect does this have on others?
- Does the group drift from topic to topic? Who topic-jumps? Do you see any reason fo this in the group's interactions?
- Who supports other members' suggestions or decisons? Does this support result in the two members deciding the topic or activity for the group? How does this affect others?
- Is there any evidence of a majority pushing a decision through over other members' objections? Do they call for a vote (majority support)?
- Is there any attempt to get all members participating in a decision (consensus)? What effect does this seem to have on the group?
- Does anyone make contributions that receive no response or recognition? What effect does this have on the member?

"Meetings"

OVERVIEW

Even after all the footwork detailed in the previous sections, meetings do not just happen. The process of assessing interests and problems and defining issues and tasks is the most important part of initiating meetings, however. Meetings actually are the end result of this long process, even though they often signal the beginning of cooperative activity. This footwork is the organizers' responsibility, while the meeting itself is the forum in which the organizer transfers all responsibility for group cooperation back to the group, through local leaders.

The end result of the preparation process is a series of individual commitments not only to come to a meeting but to participate in specific ways as well. Each member of a cooperating group has something to offer, some skill and some overriding interest to pursue. This potential energy source is harvested for the group's cooperative needs by means of the commitment the organizer hears from each participant. Having solicited and orchestrated these commitments along with the issues and tentative tasks to be discussed, the organizer begins to plan the meeting with local leaders. A "map" of the terrain of the probable discussion is made. A formal map of this kind is called an agenda.

Planning a meeting involves deciding upon the subject matter to be discussed, setting up the logistics of the meeting itself and clarifying the process by which decisions will be made. The subject matter is dictated by the issues and tentative tasks which have envolved through individual discussion of the overall problem. Priorities can be established by answering questions like: What specific thing is it best to accomplish in this meeting? What is possible in the time allowed? What will be presented as the specific purpose of this meeting?

The logistics of a group meeting must be well planned so they contribute to rather than detract from the meeting's success. Determining the number of people to come and the type of meeting it is to be, leaders can decide where the most appropriate site may be. The time, place and date must then be set, considering competing interests and local custom. The participants should be asked if the logistics (especially time) suit them, so final adjustments can be made.

The organizer and leaders should make sure there is maximum participation, no one is left out, and items are considered carefully and systematically. An understanding of how groups work and make decisions is crucial to guiding the meeting process. The following subchapter "Group Dynamcis" explores this in depth. At this stage leaders try to define steps the group can take which will bring people through fruitful discussion to agreement on the tasks and roles they will take on. Leaders leave room in this plan for variations and options which the group may exercise, because meetings never go exactly as planned, and arbitrarily tight control which is not sensitive to the needs of participants can hinder group efforts considerably. The plan of how things may go is a tentative and fluid guide by which leaders can keep the meeting on track while adjusting to needs as they arise.

An agenda or list of the steps of the meetings and topics to be discussed should be devised and shared with participants if possible before the meeting commences. In the case of oral cultural situations, this can be done informally by word of mouth, although written agendas are also common. By sharing the agenda beforehand, each participant is clued in to how he or she fits into the meeting. "Oh, this is where I can say my thing." A shared agenda may also be used as the meeting guide without being an arbitrary source of power. The agenda can be discussed, adjusted and agreed upon to begin meetings, in order to assure group allegiance.

By sticking to an agreed-upon agenda based on rigorous organizing footwork beforehand, a meeting can progress fairly smoothly. Each meeting takes on its own characteristics and nature, however, and going with the flow of things as they come up (as long as they are not too far off the subject) helps a meeting move toward its conclusion. Leaders function best when they balance the need for orderly progress with an ability to adjust to the way ideas and topics come up spontaneously. Meeting are most successful when they are lively and well-paced.

A meeting should always end with a summary in order to remind participants of concrete results and commitments made. The last thing with which to end a meeting, business-wise, is an agreement as to the time and place of the next meeting. As for the style of meetings beyond these suggestions, local custom and habit should dictate the details. American college students find it normal to sit in a circle and act as equals without a real authority figure. In some communities tradition dictates a clear line of authority and a formal process of discussion involving spokespeople, parliamentary procedure or other conventions. These various styles must be respecfully employed, tailoring the suggestions made here to fit into any cultural patterns. That kind of sensitivity can itself lend weight to the process of group decision-making and contribute to the overall success of cooperative activity.

TOOL

STEPS IN DECISION-MAKING MODEL
(Ingalls, *Andragogy*)

"Helping Behavior"	STEPS	"Blocking Behavior"	Work Methods
Clarifying Summariaing Testing for Meaning	DEFINE THE PROBLEM	Ambiguity Over Generalizing Over Simplifying	Problem Census Buzz Groups Problem Stating
Informing Requesting Information Sharing Experience Collecting Opinions	GATHERING THE INFORMATION (IDEAS)	States attitudes too early Status Threat Size of Group Mixing Testing and Production	Buzz Groups Brainstorming Dicussion
Reality Testing Implication Summarizing Harmonizing Clarification	IDENTIFY ALTERNATE SOLUTIONS	Lack of Experience Too hasty Decision Straw Voting Attaching Ideas to People	Discussion Role Playing Reality Testing
Summarizing Testing Consensus	DECISION MAKING	Voting Taking Sides Failure to Test Mixing Policy and Action Groups	Get Consensus Voting
Initiating Informing	ACTION IMPLEMENTING	Failure to Pin Responsibility Lack of Involvement No Mechanics Specified	Team Planning Committees Work Groups Individual Work

TOOL

REVIEW CHECK SHEET FOR LEADERS OF MEETINGS

(Kenya/USAID Ag Extension Manual)

	Check (x) one of these		
	Out-Standing	Satis factory	Needs Improvement
1. Did the meeting show careful planning?			
2. Was proper selection made of the persons attended?			
3. Did leader do all that should have been done in advance of the meeting to prepare for the meeting?			
4. Were materials and equipment ready?			
5. Were the seating, ventilation and lighting properly arranged?			
6. Did the meeting start on time?			
7. Was the group at ease?			
8. Was the problem or objective clearly defined?			
9. Was the group genuinely interested in the subject?			
10. Were facts and ideas clearly presented?			
11. Was the leader skillful in the use of questions?			
12. Did the leader keep the discussion moving progressively on the subject?			
13. Did the leader utilize the thinking of everyone in the group?			
14. Was the discussion clarified and speeded up by the effective use of the blackboard or other visual aids?			
15. Was the leader open-minded?			
16. Did the leader help the group weigh and analyze?			
17. Did he get general agreement from the group?			
18. Was the meeting effectively summarized?			
19. Were logical decisons reached, action planned or, the objectives otherwise accomplished?			
20. Did the meeting close on time?			

TOOL

How to lead the meeting (Kenya/AID Ag Extension Manual)

1. Open the meeting.
   (i) Put the goup at ease.
      - o Be at ease yourself.
      - o Tell the story.
      - o Relate to current events.
      - o Use well modulated, low voice.
      - o Make introductions.

   (ii) State objectives and explain plan.
      - o A clear statement starts off the meeting with proper direction.
      - o State overall objectives.
      - o State immediate objectives.
      - o Let the group make every decision possible.
         (1) Who will take the minutes?
         (2) How long will the meeting last?
         (3) What about tea breaks?
         (4) Are individual notes necessary?
         (5) Are questions permissable?
         (6) Are special speakers needed?
         (7) Will indivdual assignments be made?
         (8) What form of summary will be given?
         (9) Will mimeo summaries be mailed to members?

   (iii) Arouse interest.
      - o Develop friendly attitude toward the group.
      - o Establish a need for their thinking and cooperation.
      - o Associate objectives and subject with the group's experience.
      - o Point out personal benefits.
      - o Use friendly competition.
      - o Use visuals, etc.

2. Present the facts
   (i) Present the facts clearly.
      - o Clear thinking precedes clear expression.
      - o Present one idea at a time.
      - o Relate ideas.
      - o Use language for group level.

(ii) Stimulate and direct discussion.
- How would you do it in your district?
- Where would you get the information?
- What evidence is there that this is true?
- Give us an example of what you mean.
- If this is true, what shall we do?
- When shall we put it into effect?
- Who is most concerned in your district?
- How would Mr. X's idea work?
- Why is it necessary to do this?

NOTE:

The above questions are samples of how to encourage discussion. Your questions are better, but design them to fit the situation and to bring out the facts.

(iii) Keeping discussion moving.
- Use chalk board for the objectives.
- Re-stating the objectives.
- Asking questions.
- Appoint someone to study questions which are doubtful as to use.
- When the purpose of the meeting is accomplished bring it to a close.

(iv) Encourage thinking by every individual present.

- Do not allow one or two persons to dominate the discussion.
- Keep a participation chart.

3. Weigh the facts.

(i) Help the group weigh the facts.

- Condense ideas into short statement.
- Weigh actions against objectives.

(ii) Get group acceptance.

- Use blackboard to list objectives.

(iii) Summarize frequently.
- "Let's see where we are now"
- Use questions to sharpen the facts on the objectives.
- Use questions to steer the group.

4. Sum up.

(i) Summarize agreements or conclusions.
- The chairman is reponsible for "nailing down" the conclusions.
- Get down in writing the cold facts concluded.

(ii) Indicate the action needed.
- What is going to be done about it.
- Where are we going from here?
- Get the group to indicate action needed.

(iii) Make follow-up assignments.
- Who is to do the work.
- Write down the assignments.
- Appoint a committee for further study.
- Request special reports from individuals.
- Write up, distribute and file minutes.
- Report the meeting to the press.
- Inform absent members of actions.
- Assign responsibility for future meetings.

(iv) Close on time.

- Think of your audience
- If it runs over time, excuse those who must go.
- Unfinished business can be carried on at future meetings.
- Do not plan to do more than is possible in the time scheduled.

"Group Dynamics"

OVERVIEW

Groups exist for a variety of reasons and have different methods of pursuing their purposes. Often, several of the functions described below are performed within one group. For example, an educational group may impart information and give practice in skill acquisition. Rarely does a group concern itself with a single function. These functions of groups are:

- Imparting information. A group performing this function emphasizes passing information among group members, or between a resource person and the group.

- Skill acquisition. A group concerned with this function emphasizes the acquiring of abilities. While an information imparting group, as described above, would stress the knowledge of theories or techniques, a skills acquisition group focuses on the practical application of this information. An example of this kind of group is a workshop where participants learn and practice new counseling techniques.

- Actualization. This group focuses on the members themselves. It stresses feelings, awareness, and self-expression. Consciousness-raising groups and groups practicing values clarification are two examples of actualization.

- Setting objectives. The focus of this kind of function is on choice and commitment--on making a decision. The group is choosing among alternatives in order to take a stand, develop a policy, or select a specific direction of action. An example of setting objectives is when a group passes judgment on recommendations of a subcommittee.

- Task performance. A task group is one whose function is to do a job, whether it be a specific job (develop a new curriculum for a new school) or a general job (increase public understanding of pollution). The first three kinds of functions are education; the fourth kind of function (setting objectives) involves characteristics of both educational and task groups.

Dividing lines between these categories are not always sharp. A group's purpose may vary from meeting to meeting, or may involve a combination of the above types. For instance, a committee appointed by a mayor to recommend guidelines for developing youth programs in the city may act first as an information-imparting group as it studies existing programs. It may resemble an actualization group when members try to identify and understand human needs. It is setting objectives when it selects which needs are most relevant and what programs are most worth supporting. Finally, it is a task group as it prepares a proposal to return to the mayor. As leaders plan for facilitation, it is valuable to keep in mind the functions of the groups they will be working with.

All human interactions have two major ingredients--content and process. The first deals with the subject matter or the task with which the group is working. In most interactions, the main focus is on the content. The second ingredient, process, is concerned with what is happening between and to group members while the group is working. The group process, as it emerges in this course, encompasses tone, atmosphere, participation, styles of influence, leadership struggles, conflict, competition, and cooperation. In most interactions, very little attention is paid to process, even when it is the major cause of ineffective group action. Sensitivity to group process will better enable trainers to diagnose group problems early, and deal with them more effectively, and will enable trainees to be more effective participants.

Verbal participation is one indication of involvement. Leaders should look for different participation within the group.

- Who participates more than others?
- Who participates less?
- Do you see any shift in participation, e.g., frequent participators becoming quiet, infrequent participators suddenly becoming talkative? Do you see any possible reason for this in the group's interaction?
- How are those who remain silent treated? How is their silence interpreted--content, disagreement, disinterest, fear, etc.?
- Who talks to whom? Do you see any reason for this in the group's interactions?
- Who keeps the ball rolling? Shy? Do you see any reason for this in the group's interactions?

Influence and participation are not the same. Some people may speak very little yet they capture the attention of the whole group. Others may talk a lot, but are generally not listened to by other members.

- Which members are high in influence? That is, when they talk, do others seem to listen?
- Which members are low in influence? Is there any shifting in influence?
- Do you see any rivalry in the group? Is there a struggle for leadership? What effect does it have on other group members?

Influence can take many forms. It can be positive or negative; it can enlist the support or cooperation of others or alienate them. How a person attempts to influence another may be the determineing factor in the other's receptivity. There are at least four styles of influence that frequently emerge in groups.

- Autocratic--Does anyone attempt to impose her will or values on others or try to push them to support her decisions? Who evaluates or passes judgment on other group members? Do any members block action when it is not moving in the direction they desire? Who pushes to "get the group organized?"
- Peacemaker--Who eagerly supports other's decisions? Does anyone consistently try to avoid conflict or unpleasant feelings from being expressed by pouring oil on the troubled waters? Is any member typically deferential toward other group members (thus giving others power)? Do any members appear to avoid giving negative feedback, i.e. will they level only when they have positive feedback to give?
- Laissez-faire--Are any group members getting attention because of their apparent lack of involvement in the group? Does any group member go along with group decisions without seeming to commit herself one way or the other? Who seems to be withdrawn and uninvolved? Who does not initiate activity, or participates mechanically and only in response to another member's question?
- Democratic--Does anyone try to include everyone in a group discussion or decision? Who expresses her feelings and opinions openly and directly without evaluating or judging others? When feelings run high and tensions mount, which members attempt to deal with the conflict in a problem-solving way?

A major concern for group members is the degree to which they are accepted by the group. Different patterns of interaction may develop in the group that give clues to the degree and kind of membership.

- o Are there any subgroups? (Two or three members may band together for a period of time during which they consistently agree and support each other. Or several members may consistently disagree and oppose one another.)

- o Do some people seem to be "outside" the group? Are some "in?" How are those "outside" treated?

During any group discussion, feelings are frequently generated by the interactions between members. Although these feelings are rarely discussed, the tone of voice, facial expressions, gestures, and many other forms of nonverbal cues can help observers understand what participants are feeling.

- o What signs of feelings do you observe in group members (anger, irritation, frustration, warmth, affection, excitement, boredom, defensiveness, competitiveness)?

- o Do you see any attempts by group members to block the expression of feelings, particulary painful feelings? How is this done? Does anyone do this consistently?

There are certain functions that should be carried out in order to get work done. The leaders will improve their understanding of the process if they take a look at how these functions are accomplished.

- o Does anyone ask for or make suggestions as to the best way to proceed or to tackle a problem?

- o Does anyone attempt to summarize what has been covered or what has been going on in the group?

- o Is there any giving or asking for facts, ideas, opinions, feelings, feedback, or searching for alternatives?

- o Who keeps the group on target? Who prevents topic jumping or going off on tangents?

These functions are important to the morale of the group. Their performance (or the lack thereof) can maintain or destroy good and harmonious working relationships among the members. When properly carried out, these functions can create an atmosphere that enhances each member's ability to contribute maximally.

- o Who helps others get into the discussion (gate openers)?

- o Who cuts off others or interrupts them (gate closers)?

- How well are members getting their ideas across? Are some members preoccupied and not listening? Are there any attempts by group members to help others clarify their ideas?

- How are ideas rejected? How do members react when their ideas are not accepted? Do members attempt to support others when they reject their ideas?

The way a group works creates an atmosphere that, in turn, is revealed in a general impression. Trying to capture this impression in words will give the leader some insight into what people do and do not like about the group environment.

- Who seems to prefer a friendly congenial atmosphere? Is there any attempt to suppress conflict or unpleasant feeling?

- Who seems to prefer an atmosphere of conflict and disagreement? Do any members provoke or annoy others?

- Do people seem involved and interested? What is the atmosphere like?

- Are group members overly nice or polite to each other? Are only pleasurable feelings expressed? Do members agree with each other too readily? What happens when members disagree?

- Do you see norms operating about participation or the kinds of questions that are allowed (e.g., "If I talk, you must talk," or "If I tell my problems, you have to tell yours")? Do members feel free to ask each other about their feelings? Do questions tend to be restricted to intellectual topics or events outside of the group?

What the group is talking about is content. How the group is handling its communication, i.e., who talks how much or who talks to whom, is group process.

In fact, the content of the conversation is often a good clue to what process issue may be on people's minds when participants find it difficult to confront an issue directly.

When an extensionist and the local leaders who act as her counterparts in organizing group activity have a clear understanding of groups dynamics, they stand a much better chance of facilitating successful group endeavors and maintaining harmony among those involved.

ILLUSTRATION

The island people have been meeting on the first Wednesday of every month at two o'clock for the few years since it had been organized by Ernie Camphill, the dynamic leader who used to work here. It had been some time since he had the time to work with island folks. Rachel, the new county agent, comes over on the county boat wondering what to expect.

At fifteen minutes to two the children begin filing out of the one room school house where the meeting is to be held. Slowly some of the island folks drift toward the school. The chairman and the secretary sit in the front. County community service workers like Rachel sit in the school chairs facing them. Nothing happens for a while. Finally, the co-op meeting being adjourned, a few more island folks come in. The chairman opens the meeting in his soft voice and the secretary reads the minutes of the last meeting. After a few moments of silence, the secretary asks if someone from the island would please move to accept the minutes. The majority of those attending the meeting are visitors and don't realize that is what should happen next. Finally a motion is made and seconded.

The chairman asks if there is any "old business". A woman asks a question about land taxes, even though neither the old minutes or present agenda mention taxes. A ten minutes discussion of taxes sidetracks the meeting. Finally, the chairman asks for any new business. After a pause, several of the community service people rise to speak about the purposes of their visit and items of interest to them. Two islanders leave. Of the remaining islanders present, three stand against the wall near a side door. One sits in the front row attentively, but she is on-call with an emergency unit so she looks worried.

An older woman who is president of the island co-op reports that the co-op needs a considerable loan. She asks the island association for help. This prompts a tall, angular island woman to rise from her position leaning against the far wall. She proceeds to speak eloquently and sarcastically about the poor motivation of the co-op and organization members. She asks how the organization can extend a loan when members do not even pay their dues. She pulls out her five dollar dues and give it to the secretary dramatically.

The secretary proceeds to call the roll of members dutifully. Several islanders leave before their names are called. Only a handful pay their dues. See what I mean? the tall women declares. The president of the co-op wearily asks the meeting for a clear decision on her loan request. After another pause, the secretary reports that there is not enough money to loan even if members agreed to do so.

Rachel is confused. She is not even sure what the purpose or function of this meeting is supposed to be. Some participants came to impart information while others came for action. Rachel herself wonders, after seeing the islanders exhibit such alienated behavior, what the group's feelings are about their group. She notices that participation seems haphazed and limited; there is rivalry in the group; decisions are not made clearly; membership itself is in question. The group atmosphere seems vague and uncomfortable, and no one seems to be maintaining group cohesion or purpose very well. She wonders how open the chairman and secretary are to some suggestions about how to facilitate their group activities better. Even on an island where everyone is very close to begin with, Rachel realizes that groups do not necessarily work well together. She leaves, resolved to plan a way to help the island group function more effectively.

TOOL

1. Group Growth Model
(Training of Trainers Manual)

Group Growth Model		
Phase	Task Functions	Personal Relations Functions
1	Orientation	Testing and Dependence
2.	Organizing to Get Work Done	Intragroup Conflict
3.	Information-flow	Group Cohesion
4.	Problem-solving	Interdependence

TOOL

GROUP GROWTH
(TOT Manual)

As a group begins its life and at several points during its growth, the loeader and members might individually fill out the following scales and then spend some time sharing the data that is collected. Through these scales, it is possible to get a general picture of the perceptions which various members have about the group and how it is growing. It is also possible to pick up areas in which there may be some difficulties which are blocking progress.

1. How clear are the group goals?

1.	2.	3.	4.	5.
No apparent goals	Goal confusion, uncertainty, or conflict	Average goal clarity	Goals mostly clear	Goals very clear

2. How much trust and openness in the group?

1.	2.	3.	4.	5.
Distrust, a closed group	Little trust, defensiveness	Average trust and openness	Considerable trust and openness	Remarkable trust and openness

3. How sensitive and perceptive are group members?

1.	2.	3.	4.	5.
No awareness or listening in the group	Most members self-absorbed	Average sensitivity and listening	Better than usual listening	Outstanding sensitivity to

4. How much attention was paid to process? (The way the group was working?)

1.	2.	3.	4.	5.
No attention to process	Little attention to process	Some concern with group process	A fair balance between content and process	Very concerned with process

5. How were group leadership needs met?

1.	2.	3.	4.	5.
Not met, drifting	Leadership concentrated in one person	Some leadership sharing	Leadership functions distributed	Leadership needs met creatively and flexibly

6. How were group decisions made?

1.	2.	3.	4.	5.
No decisions could be reached	Made by a few	Majority vote	Attempts at integrating minority vote	Full participatested consensus

7. How well were group resources used:

1.	2.	3.	4.	5.
One or two contributed, but deviants silent	Several tried to contribute, but were discouraged	Average use of group resources	Group resources well used and encouraged	Group resources fully and used

8. How much loyalty and sense of belonging to the group?

1.	2.	3.	4.	5.
Members had no group loyalty or sense of belonging	Members not close but some friendly relations	About average sense of belonging	Some warm sense of belonging	Strong sense of belonging among members

9. Other comments ______________________________

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"Training Leaders"

OVERVIEW

Group leaders are not always the titular leaders one encounters in a community. Often leaders vary depending on the task or the nature of a group. Ideally leadership in group activities emerges as the process of planning and working together progresses. On the other hand, the extension worker should not take the training of leaders for granted.

During the early stages of organizing cooperative activity as problems and interests are being assessed, the extensionist should also look for people whom others follow. Opinion-leaders, skilled craftspeople or technicians, orators and charismatic characters can be identified. At this point it is useful to let leadership fluctuate and change naturally in order to minimize rivalry and to allow the most appropriate leader to arise.

In certain kinds of cooperative activities, specific qualities of leadership should be sought out. For example, when the activity is a field day to arouse interest in new practices among neighboring farmers, a charismatic, eloquent and respected farmer might best lead. On the other hand, if the activity is a tough physical task like digging out a fish pond or constructing an earthen dam, a forceful and hard-working leader might be best. The point is to become aware of potential leaders and to earmark them for specific leadership tasks as work begins.

Leadership in small rural communities must maintain a strong tie to tradition and local custom. Where women are typically in charge of a certain kind of activity for example, suggesting a man would be foolish. Similarly, leadership of cooperative activity works best when it parallels the lines of leadership in the local community. This minimizes rivalry and where possible avoids the issue of politics. Leaders, for this reason, should be chosen ultimately by group participants.

The process of training a potential leader in the skills of organizing is the same process as that of training a counterpart outlined in Chapter Three, "Working With Counterparts". The same three elements pertain: transferring responsibility, helping the person acquire skills, and defining clear and consistent roles. Skill and responsiblity are transferred by means of the same deliberate process as well:

- o demonstrate and explain a task
- o do it with the leader's help
- o ask the leader to do it with the extensionist's help
- o ask the leader to demonstrate it to the extensionist
- o ask the leader to do it in a real situation

Group situations tend to exert considerable pressure on leaders learning new skills. That is why they often feel dependent on the organizer, feeling "I can't make any mistakes, not on this scale. " But as was illustrated in the previous section it is essential that, having prepared a leader adequately, the organizer learns to say "NO". For, as the organizer in that illustration says, "When will you ever learn to make decisions?"

Giving and receiving useful feedback is an essential skill when training leaders. They must feel free to come to the organizer both for help and helpful criticism, and to give the organizer feedback, too.

By training leaders to take over the roles of organizer and guide of cooperative activities, extension workers promote a lasting form of "competent autonomy" among farm communities. When groups of farmers can organize and carry out cooperative activities successfully, they have gone a long way towards discovering their own resources for growth and change.

ILLUSTRATION

On arriving in the village, the extension agent was introduced to local farmers at the monthly co-op meeting. President, vice-president, treasurer and other officers, as well as neighborhoodleaders all greeted him. The agent found the co-op to be highly organized, and he wondered what he could help to accomplish. He found, after several months of observation and inquiry, that the co-op had been approached several times by a regional businessman to be the supplier of vegetables and grain to the market. Due to past experiences which failed, and to the limited market analysis skills of the co-op's leaders, the co-op had never considered the matter seriously, even though the extension worker was reasonable sure the co-op could profit enormously. The limit of the co-op leaders' skills and experience really seemed to restrict the group's ability to grow. The extensionist drew on his college economics background. He solicited the help of an amenable co-op officer, who had also studied economics. Together they calculated the cost/benefit of selling crops to the town market. They then sold a small amount, realizing a modest profit. The co-op officer talked informally to other officers and finally made a presentation to the entire co-op, explaining very simply what the market venture cost, and what the profit was. The co-op officers and members took the idea of working with the town market into serious consideration.

TOOL

DESIRABLE LEADER CHARACTERISTICS: A SAMPLE LIST (TOT Manual)

Self-awareness, including a sense of the impact of his or her own behavior on others.

Ability to receive feedback from the environment.

Ability to encourage the taking of risks without humiliating participants.

Ability to deal with own feelings and the feelings of others.

Undertanding and ability to manage group process.

An ability to make appropriate interventions, especially feedback, even when it is perceived as painful.

Ability to make clear presentations.

Ability to establish objectives and to move a group towards them.

Group facilitation, including the ability to let the group work on its own.

Cultural sensitivity to the many different ways of viewing things.

Ability to understand group process and the stages of group life.

Flexibility and adaptability in regard to the group's needs.

Planning and organizing presentations, the how and when of interventions.

Good delivery skills; stand-up skills.

Respect for needs of adult learners and ability to put adult learning theory into practice.

Holds all group members in "unconditional positive regard."

Has patience and paces self in accordance with the group's developmental phase.

Has communication skills.

Can deal with volatile material.

Can evaluate the training event.

Able to model behaviors that are taught.

Can allow criticism of self.

TOOL

POOR LEADER CHARACTERISTICS: A SAMPLE LIST (TOT Manual)

Uses warnings and threats to get group moving.

Intervenes excessively.

Is the center of the process; does not allow group to work on its own.

Subtly or overtly insists on particular behaviors from group members.

Has little awareness of his or her impact on others.

Is not able to receive feedback.

Humiliates participants into taking risks.

Is unable to respond to process.

Avoids giving feedback when it is painful.

Poor delivery skills.

Gives unclear or disorganized presentations.

Lack of sensitivity to cultures or viewpoints different from his or her own.

Rigid and unadapting with regard to group's needs.

Unable to plan and organize events.

Violates needs of adult learners.

Does not expect to have respect or positive regard for all participants.

Poor communication skills.

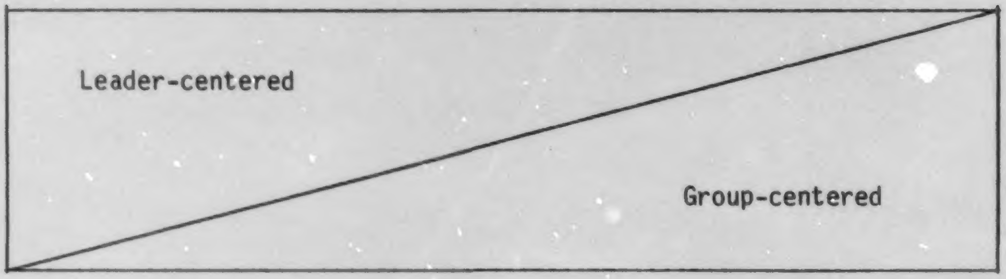
Impatient and poor at pacing himself or herself.

Spends no time or is unable to evaluate a training event.

Is intolerant of any criticism directed at him or her.

TOOL

Leadership Style



Leader decides, announces decision (autocratic)

Leader presents tentative idea, subject to change (democratic)

Group defines boundaries and decides (laissez-faire)

In the extreme leader-oriented (autocratic) style, the leader determines the problems and makes the final decision. He/she is often concerned that the group function efficiently and accomplish the tasks set before it. The process of the group, or how the members work together, is of little interest to the autocrate. This leader focuses almost exclusively on content.

In the extreme group-oriented (laissez-faire) approach, the group is allowed to determine the problems and to make the decisions. This leader keeps a very low profile and is content to let the group set its own course. To the laissez-faire leader, the end result is much less mportant than the question of how the group gets there.

In between the two extremes are any number of combinations of group and leader orientation. Most often, the style of a group leader is somewhere in the middle--such a leader might determine the area on which the group should focus and then will help the group work through the issue.

Although everyone has a style of leading with which he/she is most comfortable, conditions often exist that create pressures to adopt a more leader-centered or group-centered approach. Factors that generally favor greater leader involvement are the following:

- The urgency of the problem: When a decision must be reached quickly, the leader may need to make the decision. Decisions made by the leader are usually reached more quickly than are decisions made by the group.
- Lack of group skills: When a group has not developed a system for processing issues or is unclear about its goals, the leader is likely to assume a larger role.
- Expectations of the leader: In many groups, members have unrealistic expectations of what the leader can do for them. Sometimes the group will pressure the leader (as the "expert") to make decisions for them.
- Leader discomfort: The novice leader, especially, may feel uncomfortable when he/she perceives that nothing is happening in the group. A common response to this is to try to initiate some activity by taking charge.

Parallel conditions exist that promote greater involvement by the group.

- No time pressure: If a group has no time limits, the leader can afford to sit and wait until the tension level of the group rises and the group initiates its own activity.
- Group skills: When a group is established and the members trust each other and are comfortable in their roles, the leader often can stay in the background and let the group lead itself. But even this mature group may require direction from the leader if it becomes counterproductive.
- Group potency: When the gorup has developed a cohesiveness, the members often will not rely on the leader, but will look for leadership from within the group.
- Leader comfort: The leader who has been through uncomfortable situations before is likely to be less threatened when they recur. He/she may choose to sit back and allow tensions to build to the point where the group must examine the problem.

The question of appropriate leadership styles arises in every group. Of course, many factors are specific to each group (for example, the composition of the group) and these affect the style of leadership. But many groups also progress through stages where different functions may be required of the leader. For instance, in the early stages of a group, the leader may have to be more directive, setting norms and goals and helping the members get acquainted. The leader must be careful, though, not to establish a precedent where the members rely on him/her to resolve group issues. Then at a later stage, the leader may want to become more nondirective and let the group resolve its problems through procedures established since the group's inception.

No leadership style can be considered foolproof. A directive leader probably will be confronted with aggressive and blocking behavior and challenges to his/her authority. The nondirective leader will encounter demands for more structure by group members. The effective group leader must be aware of the different leadership strategies appropriate to the stage of group growth and to the problems the group is facing. Finally, he/she must realize that, even with appropriate leadership, tensions are bound to arise occasionally. Although these tensions can make the leader uncomfortable, they often are helpful in promoting group growth.

"Forming Associations"

OVERVIEW

If an extensionist helps a group of farmers successfully take part in cooperative activities following the guidelines described in the previous subchapters, the group will likely feel it has a definite identify and purpose. If the activities become important enough to be regularly-scheduled, the group has achieved the status of an association or a cooperative organization.

Because cooperatives so rarely succeed, and rarer still survive, the word "cooperative" is not always associated with successful, conflict-free group activity. The word 'association' has a less emotional history and has a more appropriate meaning for extensionists working with small-scale farmers. Associations are groups which have a thematic connection (such as small-scale farming) that crystallizes into cooperative activity when conditions are right. In rare instances these associations do indeed take on continued formal organizational structure, but most do not.

Usually an opportunity to form an association of farmers exists when there is a long-standing history of shared interests and experience among farmers, and some relatively permanent form of cooperation is involved, like a community farm or store. This on-going cooperative interest becomes an impetus for continuing cooperative effort. As long as it serves member needs, the effort will continue.

In order to ensure the continuation of the cooperative association, the extensionist must make sure that the leaders and membership have the skills and training to keep things going. In this instance, the TASK-PERSON scale is tipped almost completely to the person side. The extensionist must be willing to work on every task in such a way that she is passing on skill. The association needs this infusion of new human resources to carry on.

The financial and material needs of an ambitious association are not small either. Here the extensionist can help make the connection between the association and outside resources which the association's new influence can command. It is imperative, however, that the extensionist maintain a clear role as facilitator only, providing indirect service, leadership training, and behind-the-scenes advice. Otherwise, in its zeal to take on new challenge, the association can lapse into a kind of meta-dependence, where the high stakes of cooperating are safely protected by the extensionist's efforts. When the extensionist leaves a situation like that, the effects are disastrous, and the loss of confidence engendered is incalculable.

In order to form an association, farmers and organizer merely transform the process of cooperating into a regularly-repeated, formal procedure. The degree of formality is a matter of choice and scale. The larger the organization, the more formal it must become to maintain order. When a group of farmers work with an extensionist to form a lasting farmers' association, they are exercising their ability to participate in the process of change to its fullest extent.

For ILLUSTRATIONS, see previous sections.

TOOL

See ICE Co-ops Packet.

TOOL

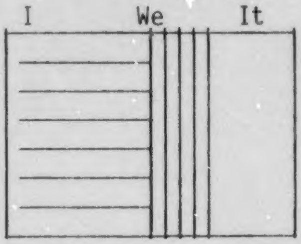
1. THEORY OF GROUP DEVELOPMENT (TOT Manual)

The Stages of Group Growth

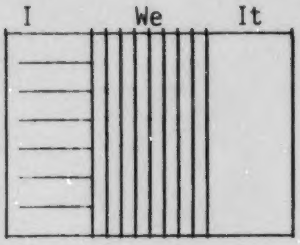
During every group interaction, three types of needs are present: individual needs, group needs, and task needs. The length of time spent on each type of need depends upon many variables, a major one being the phase of group development.

I	= Personal Needs	-- getting oriented to the group, finding out whether one's personal needs will be met
We	= Group Needs	-- developing useful membership roles, ground rules, procedures, and group structures as needs emerge
It	= Group Task	-- focusing on the agreed-upon objective(s)

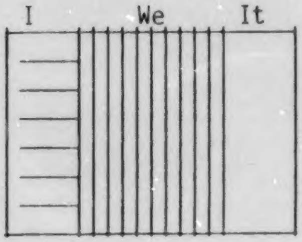
The following diagram shows different stages in the evolution of a group:



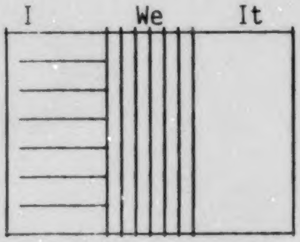
Phase I: Orientation, Testing, and Dependency



Phase II: Organizing to Get work Done, IntraGroup Conflict



Phase III: Information flow, Group Cohesion



Phase IV: Problem-solving, Interdependence

Explanation of the Phases

Phase I

Task: Orientation

In the first phase, the needs of group members are to be oriented to the task, that is, to define the task, specify issues, identify expectations, and explore the nature of the work. From this members develop a common understanding of the group's purpose that begins to answer the questions: Why are we here? What are we supposed to do? How are we going to get it done? And, what are our goals?

Personal Relations: Testing and Dependency

In the first phase, participants generally act as if they depend on the leader to provide all the structure. They look to the leader to set the ground rules, establish the agenda, to do all the "leading," while the group members acclimate themselves to the setting. Feelings involved are excitement, apprehension, and confusion. Group members exhibit behavior to test what behavior is acceptable and what is taboo, and begin to establish boundaries, to consider themselves as individuals vis-a-vis the group, and to define the function of the group and the leader.

Concluding Phase I

This phase generally concludes when there is general agreement that the goals are achievable and that change is possible -- whether it be changing behavior, making a decision, or solving a problem.

Phase II

Task: Organizing to Get Work Done

Organizing to get work done involves a number of group decisions. These include:

- Establishing work rules
- Determining limits
- Defining the reward system
- Setting the criteria for the task
- Dividing the work
- Assigning individual responsibility for particular tasks

Personal Relations: Intragroup Conflict

Participants bring to a group activity unique perspectives and many unresolved conflicts with regard to authority, dependency, rules, and agenda. The result is that groups experience interpersonal conflict as they organize to get work done. The conflict may remain hidden, but it is there.

The varietyof organizaitonal concerns that emerges reflects the interpersonal conflict over leadrship and the leadership structure, power, and authority.

Awareness of the possibility of change that was begun in Phase I, becomes a denial of the possibility of and the need for change; group members adhere instead to one or another extreme. The feeling level is marked by dependency on old ways and resistance to take the resks that work and change require.

This polarizing effect of early group interactionis documented in the work of Myers and Lamm (1975). After some initial effort to alter previously held positions, group members revert to their previous, pre-group stance and fight to maintain it. This phenomenon, variously described as regression or resistance, seems to occur when the group is perceived as an arena wherein deep-seated values, beliefs, and world views can be challenged. During this pahse, the atmosphere is tense and much work is accomplished.

Concluding Phase II

This phase concludes when group members have struggled enough with each other to resolve, partially, their personal relations concerns (similarities to and differences from other group members, authority, dependency, and leadership) and have agreed upon how they will organize to do the work. This allows issues to emerge that are sufficientlyimportant for the group as a whole to consider.

Phase III

Task: Information Flow

Participants begin sharing ideas and feelings, giving and soliciting feedback, exploring actions, and sharing information related to the task. This is a period during which people become gradually more comfortable about being part of a group. There is an emerging openness with regard to the task.

Personal Relations: Group Cohesion

It is during the third stage of development (assuming the group gets this far) that the participants, having resolved interpersonal conflict, begin to experience catharsis and a feeling of belonging to a group. This enables the group to focus on the task. Different points of view enrich the group process.

This phase is marked by the emergency of a "both/and" attitude on the part of group members, which replaces the "either/or" thinking of Phase II. Power and authority are seen as residing both in the group and in its members. In many theories this is the central period of group development.

During this stage there is sometimes a brief abandonment of the task in which a period of play, an enjoyment of the cohesion being experienced, takes place.

Concluding Phase III

When it becomes apparent that there has been learning in the form of new insights and new solutions to problems, the group moves into phase four.

Phase IV

Task: Problem Solving

During Phase IV, the group's tasks are well-defined, there is a commitment to common activity, and there is support for experimentation in solving problems.

Personal Relations: Interdependence

Stage four, which is not achieved by many groups, is characterized by interdependence in personal relations. Interdependence means that members have the ability to work singly, in any subgroup, or as a total unit.

The group's activities are both collaborative and functionally competitive. The feelings are focused on enjoyment of the here and the now. A reflective, meditative silence coexists with playful and pleasurable interaction with others. The tassk seems completed and there is a need for closure, repose, and quiet.

This movement is marked by integration and celebration. Much work is accomplished; previously difficult issues are simply and easily resolved. There may be attempts by some members of the group to "freeze" change and the group may decide to stop its work here.

Concluding Phase IV

If it develops the awareness that this apparent end point offers the possibility for a new beginning, the group may begin at this new starting point and work through each of the four phases in a somewhat different fashion.

MANAGEMENT

MANAGEMENT

INTRODUCTION

There comes a time when an extensionist's work becomes sufficiently complex and influential to warrant a formal management approach. Complexities arise when the extensionist begins working on more than one project. Work then occurs on several levels at once, and disorder can set in. It is then time to consider with more formal care and consideration what is being done and how it is being done.

Throughout service, an extensionist must maintain a clear sense of direction and purpose. Working on the village level and concentrating on details, this is not always easy to do. Management skills can help with this. Management is the art of "putting it all together".

There are three disciplines to master in management:

- planning
- carrying out plans
- evaluating results

Evaluation always leads back into planning because management is cyclical and its disciplines are regularly repeated in sequence. There are four general levels of management:

- oneself
- one's own work
- counterparts and co-workers
- projects

For each level the three basic disciplines of management pertain.

When a management approach is employed in agricultural extension, the overall extension process looks like this:

extension skill	management steps
Farmer training	o plan training o carry it out o evaluate its success and failure

extension task	steps
teach Jo to make a raised bed for vegetables	o plan out how, when, where, what to do o teach Jo to make a raised bed o follow up with Jo to see if he understands, will do it on his farm, can do it himself, and whether his bed turns out well when he does it.

The drawbacks of undertaking a management approach to extension work need to be taken into account. The role of the manager can easily become self-serving, the extensionist can become a despot. There is also the danger of inappropriate formality, resulting in "mini-bureaucracy". By being ever-mindful of the goal of capacitating farmers and promoting their autonomy, by managing WITH and not FOR farmers, these tendencies can be curtailed.

Another common pitfall of energetic extensionists is to take on too much work. By trying to do too many diverse tasks, the extensionist can promote chaos instead of wholeness and shallowness instead of thoroughness. Management planning includes the skill of defining priorities and assessing limitations.

Many of the tools provided in earlier chapters are management tools with which to plan, carry out or evaluate village extension activities. The management point of view, (the three disciplines), can become second nature after a while. Through diligent practice, (even when events seem very uncomplicated on the surface), an extensionist can cultivate a coherent work style.

A simple way to practice management is to think in clear categories that form a whole picture. The following is a picture of thinking in categories and seeing how thoughts fit together. The grid is then filled in to provide an example or illustration.

by levels

	SELF	WORK	CO-WORKERS	PROJECTS
PLAN				
CARRY OUT				
EVALUATE				

by disciplines

	PLAN	CARRY OUT	EVALUATE
SELF			
WORK			
CO-WORKERS			
PROJECTS			

illustration

	PLAN	CARRY OUT	EVALUATE
SELF & WORK	How do you plan your own work, that is, what you do each day, week, month?	What is your working style; which methods do you use to accomplish things?	How do you measure your own progress, effectiveness, growth, success?
CO-WORKERS	Who do you work with? How do you decide who does what, etc?	What is your working relationship? How do you work together?	How do you measure your co-worker's effectiveness? Do you solicit feedback?
PROJECTS	What projects do you work with? How do you decide? How do you plan them?	How do you start a project? How do you keep it going? What role do you play?	How do you decide if a project is a success?

"Planning"

OVERVIEW

Good planning proceeds from careful, continuing research and systematic record-keeping. As is stated in Chapter Two, planning must be done with farmers, village leaders, counterparts and government officials. The extension worker researches carefully and involves local people in planning to maximize local input into the decisions and plans which affect local life. (Consult the I.C.E. manual M-3, Resources for Development, for an in-depth explanation of project planning and resource management in extension work.)

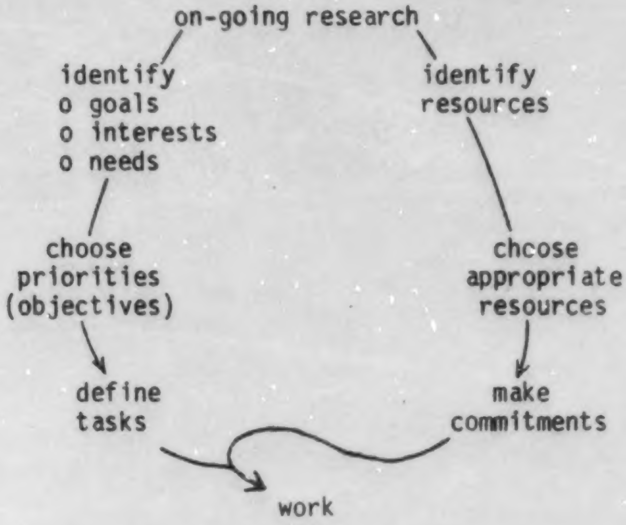
How can local people be included in the planning process realistically? First, the extension worker must become fluent in the local language and comfortable working with interpreters. Language differences can provide a rich diversity of meanings rather than barriers to communication. Secondly, the extensionist should proceed slowly and plan to some degree informally in order to be accessible. It is important to maintain records in such a way that they can be easily shared. Extension workers should be sure to focus all plans on local people's goals, not on their own ideas. This will help local planners maintain interest. Concepts and ideas developed must be cross-culturally appropriate and understandable to local people. Lastly, the extension worker can develop a disciplined habit of always asking others to be a part of the planning process. This may help cultivate a new expectation among village farmers that they should be involved in planning.

Planning involves assessment of community needs and identification of the resources to meet those needs. This can be done using a list of questions the answers to which provide a community with the information it needs to design a project. The extension worker can play a part in articulating these questions. The list of questions is provided as a TOOL in this subchapter.

Planning also involves a selection process. Given the limited resources available to any community, priorities must be set as part of any plan for development. Priorities must be aligned with the interests of participants in a planned project and consistent with the goals and values of the local community. Prioritizing begins with a clarification of goals, values and participant interests. Then it involves brainstorming (listing without argument) alternatives. When goals are clearly understood, a list of best alternatives can be selected to act upon. Those of lesser importance are discarded, included in more important ideas, or held over for future consideration. These prioritized alternatives are often called objectives.

Once priorities are established they are broken down into steps or tasks. As described in Chapter Five, a practical task is immediate, specific and realizable. If it is a group task it also is unifying. By using the CO-WORKERS TOOL which follows, tasks can be assigned to specific people, times and places so a detailed plan of an activity can be kept. The specific responsibilities of each person are charted in this way, making evaluation easy. Just by going back over a task list of this kind a planner can see who did what, when and where and can assess progress toward a goal.

GOOD PLANNING FOLLOWS THESE STEPS


on-going research
identify
o goals
o interests
o needs
choose
priorities
(objectives)
define
tasks
identify
resources
chcose
appropriate
resources
make
commitments
work

ILLUSTRATION

For a small village livestock project just getting started:

A GOAL might be:

> "To provide storage space for livestock feed."

A related OBJECTIVE would be:

> "To clear out the old storehouse."

TASKS would then be:

	WHAT	WHO	WHEN
1.	Get storehouse key.	Juan	Tuesday
2.	Get brooms, white wash, plaster, etc.	Anna	Tuesday
3.	Clear out old stuff.	Farmers	Wednesday
4.	Clean up.	Farmers	Wednesday
5.	Plaster walls.	Mason	Thursday
6.	Whitewash walls.	Farmers	Friday
7.	Check storehouse with extension worker.	Master farmer	Saturday

TOOL

Planning To Meet Personal Needs

Below is a partial list of personal needs and resources identified to meet them. This kind of list is the tool, the information listed is an illustration.

NEED	RESOURCE	WHEN
1. Mail	Post office, regional capital, by motorcycle	weekly
2. Gasoline	Pa Conteh's lorry service (need to provide container)	when available
3. Palm wine	Limba village 4 miles away, Pa Ibrahim ($0.20/pint)	as needed (early a.m.)
4. Rice	Farmers' Association	as needed
5. Tailor	Foday Kabbah, marketplace	as needed
6. Motorcycle parts	Romeo Motors, capital	when possible
7. Medical service	Dispenser/nurse: locally	as needed
	Small hospital: regional capital	as needed
	Sophisticated help: capital or Peace Corps office	when necessary

ETC

TOOL

TASK ASSIGNMENT LIST

GOAL: ______________________________

OBJECTIVE: ____

Time	Who	Method Used	Tasks/What to do	Materials Needed

TOOL

WEEKLY PLANNING CALENDAR

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY/SUNDAY

TOOL

Planning Work With Co-Workers

In order to keep track of work commitments and progress on tasks & objectives, this tool may be used:

(Filled out to illustrate its use).

TASK AND COMMITMENTS CHART

WHAT	WHO	WHEN
For Field Day at Kamala Village:		
1. Pick up tables at Ministry office	Joe and lorry	Thursday
2. Set up meeting hall for ceremony	Alayisius & Tom	Thursday
3. Cook meal for visitors	Families of farmers	Friday a.m.
4. Greet offical visitors	Chief, aster farmer	Friday noon
5. Set up demonstrations	Participating farmers	Friday a.m.
6. Coordinate stations	Jo & Tom	throughout
7. Translate for officials	Aloysius	throughout
8. Speak at ceremony	Chief, master farmer	Friday 3 p.m.
9. Follow-up letters to officials	Jo & Steve (PCV)	Monday
10. Clean up site	Farmers	Friday & Sat.
11. Party for participants	All	Sat. evening

TOOL

Project Planning (3)

1. A list of questions an extensionist can help a community answer in order to design a good project (from Resources for Development, I.C.E. manual M-3A, 1981):

   - What problem is the project being designed to address?
   - What is the primary objective of the project?
   - How will this objective be reached?
   - What resources will be needed to achieve this objective?
   - How will these resources be used?
   - How long will it take to complete the project?
   - What are the main obstacles to the project's success?

Project Planning (3)

2. A list of the guidelines for choosing appropriate resources (from Resources for Development, manual M-3A, 1981):

Resources should:

- Bring about greater community involvement in the project.
- Be available locally.
- Use appropriate technology.
- Be culturally acceptable.
- Be ecologically sound.

EXTENSION PROGRAM PLANNING
(From USAID/Kenya *Ag Extension Manual*)

Analyzing the facts

Let us analyze some of the facts.

If the farmers were asked about the situation they would probably say for example, that coffee growing is becoming less profitable, and in part this may be a fact. A closer look at the situation will reveal other pertinent facts, possibly hidden to them. It is for this reason that the extension worker is needed. You can see things farmers are unaware of. They may not be in touch with world production figures. They may not realize that by increasing the amount of top grade coffee their profits on an equal yield can increase. They may not know how to increase top grades through cultural practices. Extension workers have the know-how. Farmers are not likely to be conscious of the effect of lower grades on the country's foreign exchange situation. These facts are known to the extension workers. For every situation there are basic facts which come to light when the situation is analyzed by the extension worker in cooperation with the farmer.

Identifying the problem

From the situation, the problems can be identified if the facts are properly analyzed. In the analysis above, it is clearly stated that top grade coffee production is declining. Fron the standpoint of the country, the problem seems to be a decline in foreign exchange due to decreased sale of premium priced coffee.

As an extension worker you realize that a decreased premium grade can be caused by poor cultural practices and processing. If the farmer has not been trained to use improved practices he fails to understand why his profits are declining. The role of the extension workers becomes quite clear.

When all of the problems have been identified the next step must be undertaken.

Establishing the objectives

We know where we are by studying the situation. The objectives tell us where we want to go. If grade one coffee is found to be 40% of the total production and we want it to be 100% that would be our objective - to increase grade 1 coffee from 40% to 100%. Although admittedly such a goal would be extremely desirable, it may not be realistic. There are several requirements for setting up good, realistic objectives. They must be attainable. We might be able to increase Grade 1 coffee from 40% to 60 or 70%, that would seem realistic, and consequently more attainable. Having set figures, it gives us something to measure. Just to say: "Increase Grade 1 coffee", is not measureable. We can determine from production figures an amount such as 10 or 20%; that is something measureable. The objective here is to increase grade 1 coffee production. The goal is to increase it some definite amount, 10 or 20%. If the farmers can be made to understand what we are aiming at and what is required to achieve it,

What is Agricultural Extension Program Planning?

It is an outline of activities to be followed by extension workers and farmers toward solving a problem the farmers want to have solved.

NOTE: It has been stated that the problems are those that the farmers want to have solved. Before problems can be solved it is necessary to have a mutual understand of what the problems are. We are walking on dangerous ground when we assume we know what are the farmers' problems. At one program planning session, a group of agriculture officers decided that the cotton farmers' biggest problem was in harvesting the crop. An interview with several of the typical, local cotton farmers revealed that they were more concerned about getting insecticides at the right time and of being able to pay for them. Had the officer group proceeded to plan to solve the harvesting problem, the farmer would probably have lost interest in the final program because it would not have met their most important felt need. We must not presume to know what the problems are until we have the facts to support our appraisal. The use of a systematic approach will strengthen a program with facts.

The Scope of a Program

Before proceeding, there are some important questions to be answered. Who develops this program? It is a task of the extension worker to write down the program, but it must be developed with the farmers, to help them solve their own problems, using your assistance. Not only must it meed their needs, but it must met those of the local area, district and the nation. Should these basic requirements not be met it will be your program and you alone will not be able to carry it through. Thus a well planned program is broad-based and meets the needs of a large number of people. By proceeding one step at a time we can achieve that objective.

A System for Planning Programs

A large number of facts are needed before we can draw conclusions as to what are the problems. We need to know the situation before we can make an appraisal.

The situation

We collect and analyze facts to understand the situation. A study of the situation for one crop will serve as an example for a typical approach.

(Extract from the Kenya Development Plan, 1966-70, pp 53-55)

"Coffee has been one of Kenya's principal export crops for many years. It has enjoyed a considerable share of the world market. This share has been as much as 36% of the total market and not less than 17% since coffee was established in Kenya. The world supply is in surplus, thus competition for the market is increasing. New plantings have been stopped in view of the situation, consequently any increased production must come from the acreage already planted.

"The high quality of Kenya coffee gives it an advantage in competition for the world demand. Unless this quality is maintained it may lose this advantage. Over half of the 250,000 small growers in this country have had little the objective and goal are understandable. Every objective must be written so it can be understood by those who are to achieve it.

Before an objective will be achieved, it must be desirable. The fact that coffee is paid for on a grade basis and because Grade 1 coffee commands a higher price, you have good reason to assume that it will be desirable.

We can only be sure an objective is desirable when are are certain that the returns are in balance with the effort required to achieve that objective. Further, the increased returns must be wanted enough to cause the farmer to expend the necessary effort. It may require a great deal more effort and expense on some farmer's part to much mulching material for his plantation, if mulching is a requirement for producing an increased amoung of high grade coffee.

Objectives which meet all goals are better founded than those which only partially meet a few. If increased top grade coffee production benefits the nation, the province, district, division and the farmer as well, there is more reason to believe it is to be achieveable than if it only benefits the country at large

When setting up objectives it must be kept in mind that their function is to change the situation from what it is to what is desired. There are three means of moving in the direction of achievement. We, as extension workers can change knowledge, attitudes and skills. Some times all three factors must be changed to achieve an objective.

Determining the solution

Solutions must relate to objectives and the objectives must relate to the problems. We are likely to find some problems which have no immediate solutions. If world markets are flooded with commodity we may not be able to solve their problems. The only possible alternative might be to increase quality and efficiency, thereby becoming more able to compete with declining prices. We may be able to eliminate East Coast Fever in cattle, but we do have a relatively effective control. Even then the alternative solutions must be economically practical. Furthermore, the solutions must be throughly understood before the desired results may be realized. This often requires educating the farmers in the use of the new methods. Our job as extension workers is to teach new and improved methods.

Selecting the methods

When known and practical solutions exist the methods of getting farmers to adopt the practices must be chosen. The more times people are exposed to a new idea through a variety of channels, the more likely they are to adopt the idea. This can be taken to mean that if you use radio, newspapers, meetings, and demonstration, the farmers are more likely to adopt the idea than they are if you reach them with a single method.

Farmers must pass through five stages of adoption before the idea is accepted. If they are not aware of the idea, they will never become interested. If they are not interested, they can't evaluate its usefulness. If they don't evaluate it, they will never try it. If they never try it, they certainly won't adopt it.

These five stages of adoption are as inseparable as the links of a chain. Adoption takes place only after people have successfully passed through the five stages.

The written plan

The written plan for extension program planning can be referred to as the Plan of Work or the Calendar. Which every you prefer to call it, one important feature is that it must be written. It must also include the thinking of the farmers. Involve people in the planning, the operations, and the final evaluation, otherwise, it will be your plan and only yours. Design it so you can say; This is our plan, not mine. A good plan designates responsibilities. It tells who will be responsible for what, how, when and where. Consequently, we plan with people, not for them.

A good program

A good program can be measured by its characteristics. It develops leadership if you plan with people. The leaders come to the top when given the opportunity to participate. Their usefulness to you and the program is almost unlimited. A part of your job is to recognize leaders and to make use of their qualities. It has long been known to extension workers that the local leader has more influence in getting farmers to accept new ideas than has the worker himself.

A requirement of a good program is that it is family directed. In countries where women commonly cultivate the crops it would be a mistake not to include them in the program plans. Demonstrations in the field or courses at farmer training centers may be designed to include them. The importance of youth's influence must be considered when it is known that they are less resistant to change than their parents. Many new ideas are accepted by the parents after seeing their children successfully adopt practices. A program is destined to fail if the women and children who grow and harvest crops reject the idea of planting them.

Who participates?

Certainly the farmers must participate because it is their program. Among the farmers are the local farm leaders. They will be your must useful participants. You, as an extension worker will take a leading role in the plan of action. You give it direction. The district and provincial staff provide coordination by assisting you in making it possible to get seed, insecticide, fertilizer and other materials and assistance beyond your reach. They also coordinate activities from your level up to the national goals. Specialists are needed to help solve problems for which they are more capable and better trained. Others who may be needed are supply house representatives, chiefs, sub-chiefs and occasionally officers of the administrative branches of government. The more people you involve the greater are the chances for a successful program.

Evaluation

Evaluation, the observed measurement of the planned program, must be continuous at every stage of operation. As each planned action is completed, the results must be examined against the objectives of that action. If the activity was successful we should be able to describe why. Equally, if the action was not successful we should also be able to note the reasons. Only then can an extension service be truly effective.

Evaluation at any stage may affect the future planned program actions. More activity in the form of demonstrations may be needed; more information media may need to become involved to reinforce the presentations, or it may indeed be that the rate of programmed improvement is faster than anticipated. Source of the features of the plan can be modified as evaluation suggests.

Progress reports at all levels are based on these evaluations; in fact the evaluations are the progress reports.

The Action

The best written program plan is only a piece of paper until it is carried out by action. Hanging it on the wall for all to see creates an interesting room decoration, but it remains only that unless the actions planned are carried into the field. The program plan is your working plan and it must be worked to be valuable.

PLAN YOUR WORK - WORK YOUR PLAN.

"Carrying Out Plans"

OVERVIEW

Extension work involves carrying out plans. Each small step begins with a well-thought-out plan. Carrying out plans is the art of doing well-defined and specific tasks while remaining clear about an overall purpose. Paradoxically, one needs to keep little details and larger goals clear at the same time. Good extension work both accomplishes concrete tasks (details) on the farm and enables farmers to accomplish more themselves (larger goal). This is a management approach to work.

By carefully researching plans and defining tasks and commitments, extensionists and co-workers can orchestrate a high level of motivation for a particular project. When the personal interests of the farmers are in line with work plans, the farmers are motivated to work. When that link is not established, motivation for that particular work is lacking. Extensionists must learn to formulate work plans with the motivation of participants in mind.

A management-approach to work does not have to be formal and inflexible. In most village settings, this is neither possible nor appropriate. Work can be thorough and well-organized while being informal and flexible. There is a great deal of difference between informally-planned and unplanned work. Unplanned work does not serve farmers well.

ILLUSTRATION

The illustrations for each subchapter of this manual describe how to carry out extension plans. For example, to see how to work well with co-workers, see Chapter Three, SERVICES, subchapter "Working with Countertparts". In order to capture a whole picture of the management of a two year tour of duty, read the Case Studies in Appendix A.

TOOLS

Resources for carrying out extension work are included at the end of each subchapter of this manual. They are the most specific tools for carrying out plans. This chapter provides more detailed tools for planning and evaluating work, the two skills most commonly associated with management.

Supplement

A partial list of common interests which animate the work of extensionists' counterparts and co-workers:

INTERESTS

- Financial security
- Financial access to goods normally unavailable in villages
- Pride in work, an outlet for skills
- Community recognition as a technician or leader
- Advancement in ministry hierarchy
- Friendship and access to American culture
- Opportunities for further formal or informal training

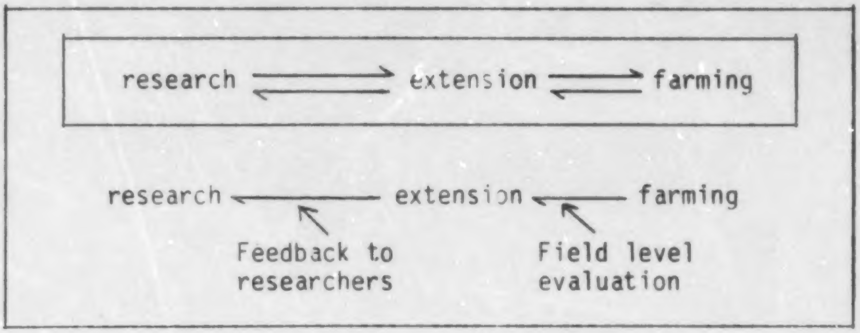
"Evaluating Work"

OVERVIEW

Evaluation measures the effects of work planned and carried out during the extension process. Evaluation helps extensionists and farmers answer questions like:

Which planned activities did we do? Not do?
How much did this cost?
What is the result of this work?
What are the benefits/ill-effects of this work?
What did we learn?
Are we closer to our goal?

Evaluation, like planning and work, must be done with community counterparts. In fact, evaluation is the most neglected part of the extension process. Two-way communication can only occur between scientists and farm families when field and community-level evaluations of extension work occur.



Evaluation is the closing link in effective two-way communication. Honest and open evaluation of community work gives small-scale farm families a real voice in the process of change and growth.

By using the planning tools illustrated earlier in this chapter as checklists, the detailed quantitative results of extension work can be measured. Progress toward material goals can thereby be assessed. There are "higher" goals than the material ones, however, which are harder to describe and harder to measure progress toward. These other goals include:

- increased two-way communication
- working onself out of a job, or increased competent independence of farmers
- ecological soundness of work
- cultural appropriateness of work
- moral or spiritual goals
- personal satisfaction or fun
- relationships with co-workers, farm families, host community

All of these goals have some relation to the overall goal of agricultural extension as described in this manual: helping small-scale farm families participate creatively in growth and change.

Expert advice may be needed to evaluate progress toward some of these "higher" goals, ecological soundness, for example. Very few village-level extensionists have the rural sociology or cultural anthropology resources to formally evaluate the cultural effects of work, but it is important to care. Philosophical, spiritual and relational issues often arise when extensionists and farm families are engaged in a process of change. Indeed, development is fraught with them. These issues cannot be evaluated in a normal sense, but they must animate the extensionist to stop and consider, to pause and reflect, and to open herself to change as it occurs. The most thrilling and challenging aspect of extension work consists in being at the center of change. Being at the center brings an enormous responsibility to others into focus. Evaluation on all levels, careful consideration in all that is done, is responsibility and care in action.

There are several types of evaluation which can be done:

Everyday observation which yields a subjective impression that can helpfully guide work. Such information is collected from casual conversation farm and home visits, meetings and individual discussions.

Informal studies which involve review and analysis of information obtained from records, reports, checklists, questionnaires, census data, etc. Done periodically, these studies should form a fairly objective basis for judging extension work. These may also include periodic reflection on the "higer" goals mentioned above.

Formal studies are more structured. They are often planned and carried out according to scientific rules to provide more objective information on the achievement of objectives or the effectiveness of methods used. These studies may include formal interviews, questionnaires, data collection and analysis, etc. Cost-benefit analysis is a good example of this (see Appendix), as are aspects of "Agricultural Survey" (see Chapter Two).

Certain basic principles underlie effective evaluation:

- Evaluation of extension work should be well planned and clearly defined as to what is to be evaluated in a program.

- Extension personnel and community people should take part in evaluation. Self-appraisal helps those who carry out a program and can be usefully combined with appraisal by an outside person.

- Everyday evlauation should be continuous and integrated with the program development process from its planning stage to the end.

- Reliable and effective devices should be used, and a representative sample chosen according to means available.

- Evaluation should be more concerned with the achievement of behavioral changed than with the number of participants, meetings, hours, items prepared, etc.

- Careful analysis and interpretation of findings should be considered when an evaluation study is being planned.

Since there are so many aspects to every extension activity, one must decide which are important to evaluate. Some aspects of extension activity are:

situation before/after
program planning
program action
methods
results
higher goals

By deciding which to evaluate, it may be easier to determine which evaluation method to use.

It is very important in evaluation to make conservative judgments and conclusions. No matter how scientific the device used or how objective the criteria for measuring, each evaluation made by an extensionist is only one person's (or several persons') point of view. There are no absolutes in the process of change, only probabilities. Critical awareness and openness to various points of view is essential to the proper interpretation of evaluation results.

Most important of all is the awareness that community members and farmers are not to be victimized by evaluation results. It is often the case that extension project failure is attributed to farmer ignorance or non-cooperation, but it is rarely true. As it is an observed tendency in evaluation of extension work, extensionists are cautioned to be wary of such conclusions. In actual fact, assigning the cause of any result to one specific factor is often misleading or short-sighted.

By spending time and energy measuring the effect of extension work at various levels, extensionsists close the final link in the chain of two-way communication. They bring farm families into direct contact with scientists and other agents of change. As the catalysts at the center of the process of agricultural change, extensionists are charged with an immense responsibility to others which they can translate into action by means of sensitive evaluation.

ILLUSTRATION

Mike had helped a group of farmers develop an inland valley swamp for rice production in the dry season. They had cleared the land, constructed the dikes, bunds and paddies, planted the rice, and performed all the production tasks. Now it was time to evaluate the results of all this work.

Mike was filled with uncertainty as he rode into the village near the rice farm. He had been away for several months working elsewhere. He was very eager to see what had happened since his last visit. As he entered the village, he saw a familar face. It was Mami, the master farmer's wife. She saw him, but ducked inside quickly. What did that mean? Mike stopped his motorcycle and parked it. All of a sudden people came from each house smiling and running. Most of the farmers and their families surrounded him and welcomed him joyously. Mike was overwhelmed and confused. One of the farmers said, "You've given us so much! We are so grateful!" They all walked together down to the village farm.

Mike wondered if he would be able to do the careful yield sample analysis on each farmer's acreage that he had hoped to do before harvest. He wondered if this was the time to do any of the specific evaluations he had listed and planned before he came... Everyone stopped at the edge of the farm with Mike and gazed out. There was a sea of ripening rice blowing in the wind, surrounded by fruiting vegetable gardens along the edge. Mike was very happy.

After a while, the crowd dispersed. Families went home to cook, farmers tended their plots, and Mike was able to inspect details with the master farmer. Mike began to ask a specific set of questions about the growing season. He wrote down the answers. Mike then explained what a yield sample was, why it was important to do, and how to do it. He and the master farmer tried one and agreed to do it for each farmer during the next visit. Then Mike looked at the dam, dikes, irrigation channels and gateways. He troubleshot sample plots for diseases, insects, iron toxicity, drainage or irrigation problems, uneven growth, etc. He recorded each of these things in his notebook.

He asked all the farmers to gather briefly under the mango tree where they had rested so often during land preparation and production work together. Mike asked the farmers a series of prepared questions which were designed to help the farmers review what they had done. He especially focused his questions on the concrete results of their own hard work, on how each land preparation or production task resulted in something specific that helped the rice and gardens grow. They engaged in a review of the season's events in this way, where Mike learned of specific problems encountered during the season and the farmers could see cause and effect at work.

By the time evening fell and the rice meal was ready to eat, Mike and the farmers had talked for a long time about what had occurred. Mike left with a very good feeling as to the production and other physical results of the community's project. He helped them see their ability to solve ag problems more clearly.

He felt the very warm relationship they shared. He was disturbed however, by the farmers' attribution of success to him personally. He also wondered about the ecological effects of their irrigation system and double-cropping methods. He saw that the farmers had ambitiously cleared the footpath to the farm so trucks could take out the rice. Unfortunately, this also made it too dangerous for the old woman and blind man who lived near the farm to work as they had before. They had to move. The road also brought the chiefdom tax collector, and the health inspector to the village for their respective duties. The tiny village of Bambaia was transformed now. Mike felt very small going home.

TOOLS (5)

1. Use the planning tools in each subchapter of the manual as checklists with which to evaluate work progress and the accomplishment of specific work tasks.

2. Factors to consider in extension evaluation:

   a. People involved:

      -project or community leaders
      -evaluators
      -outsider resources
      -community people

      Does everyone know their role, the purpose of evaluation, etc. Can everyone do what is required?

   b. Time:

      -Is it too early to tell if a project or activity works?
      -Is this the best time to evaluate?

   c. Evaluating tools and methods:

      -Are they appropriate and applicable?

   d. Finances and other costs:

      -Is this the least costly way to evaluate effectively?

3. Questions related to each aspect of work to be evaluated:

Aspect of extension activity	Questions
situation analysis	o What is the situation before and after the activity?
program planning	o How was this activity planned?
program action	o Who did what, when?
methods	o How was this work done?
results	o What are the concrete quantitative results of this work? o What process did everyone engage in? o What might be the long-term effects?

- o Did the work meet stated goals or objectives?
- o Was the specific problem solved?
- o What new problems arose?

4. Planning and Conducting an Evaluation Study

These steps are essential in planning an evaluation study: (1) select a problem demanding investigation; (2) clearly formulate what is to be measured; (3) determine the kind of information needed; (4) decide how to collect the information; and (5) plan how the information is to be used.

The following points will serve as guidelines when planning and conducting evaluation of an extension program.

A. Determine what personnel and financial resources are available and needed for making an investigation -

-what cooperation is needed from outside resources as to personnel and money?

-what time is required for carrying out a study?

B. Select and define a part of a program to study

-what objectives or content of the extension program are to be evaluated?

-which phase of this program will be evaluated, i.e. program action, teaching methods, results, etc.

-will an evaluation of a certain program or aspect of a program be useful for the future?

-will it be necessary to collect data for the evaluation or is some information already available from other sources?

C. Define and clarify the objectives of the study

-What evidence is needed to determine that the educational program is reaching its goals in terms of (a) number of accomplishments, or (b) changed behaviour of the people? Which are the most important indicators or changed behaviour?

D. Decide on how to collect information and what devices are needed

-what kinds of devices are to be used - questionnaires, obervation forms, etc.?

-if a questionnaire is to be used, what questions should be asked and how should they be phrased?

-set up record forms and prepare instructions for using them,

-pre-test devices and revise if necessary.

E. Plan tabulation

-Type of tabulation methods and tables needed to discover relationships

-Persons and equipment needed for the tabulation.

F. Determine samples

-Define population to be sampled.

-Determine what sample is needed and feasible.

-Prepare instructions for sampling.

G. Prepare for the collection of information.

-What persons are available to collect information?

-Select interviewers or collectors of information.

-Determine what training they need in interviewing, recording, etc.?

-Conduct training.

H. Collect information in the field

-Provide necessary supervision.

I. Edit and tabulate data collected.

J. Interpret facts and prepare a report

-What are the important findings of the study?

-Do different reports need to be written, e.g. for professional and for lay people?

K. Plan for use of the findings

-What implications might the findings have for future work?

5. Another format for the questions you may ask to evaluate a project:
(US AID Kenya Ag Ext. Manual)

Evaluating the Project

Don't stop yet-evaluate! Planning never ends, so, each time a project or step of the program is completed, the participants should look back over what has been done to be sure that things are going as they should. This is called evaluation and is an on-going, continuous process-just like planning. You must evaluate past efforts to plan for changes.

Develop a means for evaluation when defining the goal and writing up a Plan for Action. Keep in mind your community survey and any responses from questionnaires and statistics you might have collected as possible sources of information for evaluation.

Following each step or activity, ask questions such as:

- How well did we do?
- Did the plans work?
- Why did we succeed? or
- Why did we fail?
- What should we be doing now?
- What do we do next?
- If we made mistakes, can we keep from making them again?

Encourage the community members to begin to evaluate the project shortly after its initiation. Are people using the latrines that have been installed? Are they keeping up their vegetable gardens and eating the harvest? Are the children really going to school? Did the group for whom you intended your activities come?

After each phase of the project is over, you must follow up to determine how successful it has been. At the end, ask yourself all of these questions again. Did you get the job done? What can be done to make your efforts more successful?

Possible kinds of measurements you might use to evaluate your project, if planned from the beginning, are:

1. Quality or amount
    a. How many persons were reached?
    b. How many posters, pamphlets, home visits were made?

2. Quality - What do the people think?
    a. the leaders?
    b. the participants, villagers?
    c. other health workers?
    d. the pupils?
3. Changes in knowledge shown by:
    a. discussion among farmers
    b. answers to questions posed by extension agent
4. Changes in attitude
    a. Community support for the program.
    b. Requests for further cooperation by government agencies.
    c. Less opposition by groups in the village who had previously been against the project.
    d. Public opinion poll
5. Changes in behavior, such as:
    a. Increase in visits to the ag station or worker
    b. Improved habits and conditions noted on farms
    c. Increase in production
    d. Increase in the sale of milk, meat, vegetables or other good foods
    e. Increased need for post-harvest support
    f. Increased interest in marketing
6. Changes in community life:
    a. Improved nutrition
    b. Food surpluses
    c. Signs of economic prosperity (new houses, material goods)
    d. Improvement in health as shown in individual cases

In the case of evaluating extension work, you will find it difficult to measure the results. The mere number of lessons or demonstrations and the ability of the people to repeat them are surely not the only measure. Behavior change is the goal, yet these changes are not easily evaluated immediately since they may occur slowly over a long period of time.

As always, throughout your work with a community, it will be necessary to record your observations. This is a form of written record which you've already done during your community investigation. You should discuss the importance of record keeping with counterparts.

Evaluating the progress of complex activities (such as extension) is never simple, but it can be made easier by clearly defining the project's objectives early and relating your evaluation plan directly to those objectives. With careful planning, evaluative data will help to assure that the project is better managed, and that those who support the work, and particularly members of the community, will feel confident in the progress being made.

APPENDIX

Case Study I

Ann is a Peace Corps Volunteer who has been trained in intensive vegetable gardening techniques. She arrives to replace another volunteer in the village where she has been posted and within the first two or three days local authorities, ag workers, and townspeople hold a meeting to welcome her. She introduces herself by talking about where she has come from, her interest in helping with agriculture and her appreciation for everyone's friendliness and assistance in getting her settled into her house. She asks the names of the local leaders and listens to each make a small speech.

During the next few weeks, Ann spends most of her time orienting herself to her surroundings. She tours the town with her offical counterpart, Abdul, who introduces her to shopkeepers and religious leaders, shows her where local artisans perform their various crafts and helps her arrange for language instruction. In the evenings, she spends time filling in a map with the day's information and paying visits to her neighbors.

Ann follows up her initial contact with village leaders by asking them to commit a small amount of time to her on some agriculturally-oriented task. She asks one leader to show her his farm. She asks another to show her where she stores her crops and seed. She asks a third to introduce her to the 'best' farmer he knows. In this way she begins to piece together impressions of which leaders are actively interested or involved in agriculture and of the agricultural practices people employ in the area.

She also takes two days to travel to the district capital with Abdul to visit the Ministry of Agriculture's office there. During her stay she makes a special effort to get to know the Ministry's office secretaries, the storekeeper, motor pool drivers and mechanics, and the paymaster, because she realizes that these people hold important positions and provide her with key support services in the field. She meets for an hour or two each day with her supervisor, discussing this perception of previous development efforts in her site. He reviews the work of her predecessor who worked with vegetable gardens in three neighboring villages, and briefly describes some of the Ministry's ongoing projects in the area. She is especially interested in learning about on-farm trials conducted recently of improved eggplant, pepper and onion varieties. She is told about office procedures, is given a tour of facilities, and receives forms for her monthly reports.

When Ann returns to her site, farmers are harvesting their field crops and clearing ground for dry season vegetable gardens. She and Abdul decide to grow a small garden of their own on a plot of land in back of her house. They clear the ground together, and as they work they talk at length about gardening practices. He describes to her local methods of cultivation and she presses him for more information on the variety trials he helped conduct the previous year.

One or two times a week, Ann offers to help farmers with their harvesting chores. Though she finds it awkward at first, she gradually improves in handling the scythe made by local blacksmiths and has an enjoyable time learning to tote loads on her head and being taught the local names of various plants and tools.

As the harvest draws to a close, more attention is focused in the community on planting the vegetable crop. Farmers had good success last year, especially with their onions. This is largely due to the relatively cooler temperature in Ann's site which is at a higher elevation than much of the rest of the country. Some farmers were able to market some of last year's surplus and most are interested in expanding their efforts this season.

The main limiting factor to expanding production is the availability of onion seed, which can only be multiplied in a much cooler, temperature climate. Traders bring the seed into town from the capital city, but they charge a high price for it, demanding even higher prices than before. Ann hears much grumbling from her neighbors. She asks them what alternative seed outlets are available; no one seems to be aware of any outside the capital city. She discusses the situation with Abdul and he tells her that seed can be bought through the ministry, but that it takes a special request of Ann's supervisor as well as several months advance notice so the seed can be brought in from outside the country.

The village vegetable crop emerges and Ann and Abdul work out a somewhat regular pattern of visits to farmers. On Abdul's recommendation, they focus attention on spacing of seedlings during transplanting and on weeding practices, the two areas where farmers have had the most difficulty in the past.

The onion crop matures, and, though there are some losses due to insect infestations the crop looks good. The regular field visits and the harvest prospects have been duly noted in Ann's reports to the Ministry, and on a visit to the district capital near the end of the growing season Ann's supervisor refers to the onion crop and asks if the reports are indeed accurate, that the onion crop is going so well. His interest sparks an idea in Ann's head which she discusses with Abdul that evening.

Ann's idea is to invite her supervisor and some of the other ag workers in the district to visit her site to observe the onion crop during the first week of harvest. This would give the farmers in her area a chance to request of the Ministry a special seed purchase for the following year. It would also be an opportunity for Abdul to gain some recognition for the good work he has been doing if he were to take a very visible role in organizing a reception for the special guests.

Abdul becomes excited at Ann's suggestion and the two visit their supervisor the next day to invite him to a field day. He accepts and a tentative date is set three weeks hence.

When Ann and Abdul return to their site they visit one of the village leaders who is also an onion farmer, and tell him about the arrangements they have made with their supervisor. The leader is pleased that contact has been made with the Ministry of Agriculture about the seed problem in town, but he tells Ann and Abudl, much to their disappointment, that the field day cannot take place as planned. A special commemorative burial service will be held that day. The three talk further, some of the other leaders are called to join the deliberations, and it is decided to send a messenger to the district capital to invite the Ministry supervisor to come a week later than had been arranged. The messenger returns after a day or two with the good news that Ann's supervisor will be able to visit on the alternative date.

Planning at this point is carried out at three different levels. Ann and Abdul sit down and discuss what their goals are for the field day. They choose two: to impress Ministry officials with the needs of farmers in Ann's site for better access to onion seed; and to demonstrate Abdul's accomplishments as a field extension agent so as to enhance his prospects for future promotion within the Ministry. In order to meet these goals, the two extension workers discuss the role they will each play during the field day, and they list several questions to be posed to village leaders to help ensure that the day will come off without a hitch.

A meeting is held between Ann and Abdul and the village leaders. Abdul points out to everyone assembled that the Ministry official will arrive in the late morning and will probably be accompanied by several other Ministry workers. Discussion focuses on who will greet the official on behalf of the town, what the official will be shown on his tour of the vegetable gardens, what special provisions will be made for food and entertainment, and who will represent the onion farmers in presenting their seed request to the official prior to his departure. A list of tasks is drawn up and the town leaders decide to call a town meeting.

This meeting takes place the next evening after everyone has finished their day's work in the field. The leaders announce to the townspeople the impending visit and state that people will be needed to clear brush away from the paths to the fields, cook a special meal, provide entertainment and attend a meeting with the offical to talk about onion seed purchases for the upcoming year.

On the appointed day, Abdul and Ann make a last minute check to make sure that all the preparations have taken place. Their supervisor arrives somewhat later than either of them expect, and some of the farmers grow anxious in the meantime. Nonetheless, the day is carried out according to plan. Abdul, Ann, and the village leaders greet the official when he arrives. Abdul and a couple of the best onion farmers show the official several of the onion patches. A large meal is served while local musicians perform. And at the close of the day, the town leaders makes a small speech praising Abdul and Ann for their extension efforts and asking the Ministry supervisor about procuring onion seeds for the following year.

The official responds by saying that he has been impressed by what he has seen. He asks how many farmers are interested in buying seed from the Ministry, and after a rough head count is taken, he says that he feels confident that he will be able to get seeds for them for the next growing season.

The next few months pass slowly for Ann. The rains begin and travel becomes more difficult. Farmers devote most of their energy to traditional field crops. Ann continues to gather information about agriculture by making regular visits to farms in the area. She spends time with the women in the village who dye cloth, learning from them about their craft. And she takes a short vacation to visit friends in another part of the country.

Two or three months before the end of the rains, Ann checks back with her supervisor about the onion seed purchase. He tells her that the Ministry has no funds to place a deposit with the seed company, but that he can go ahead and place the order if he gets half the money from farmers who intend to buy seed in advance. Ann had not anticipated this difficulty and returns to her site to confer with Abdul and village leaders. A meeting is called and the information is relayed to the rest of the onion farmers. Someone claims that the Ministry official is trying to take advantage of them by stealing their money. Other farmers state that they simply will not have the cash until the field crop harvest is in to buy the seed. In the end, several farmers have to borrow money from relatives and five or six farmers drop out of the cooperative buying effort because of distrust.

The next few weeks are unpleasant for Ann. She and Abdul come under increasing pressure from villagers as the dry season approaches and the seed fails to arrive. With less than a month to spare, a message arrives from the district capital that the seed has come. A meeting is held to collect the remaining money required for the purchase. Again, two or three farmers are short of cash. They ask Ann to extend a short loan, but she chooses to remain firm and they are forced to come up with the cash elsewhere.

The seeds are bought at a price nearly twenty per cent lower than that charged by traders and many farmers are able to acquire larger amounts than they have had access to in the past. Ann and Abdul continue to work with farmers on their cultivation practices and the harvest is bountiful. Several farmers rent a truck for a day to carry their bags of onions to the capital city to sell. Others store their produce for sale in nearby villages. Ann, meanwhile, keeps careful records of yields, drying and storage techniques, and the names of people involved in cooperative marketing efforts for future reference.

The rains return and shortly thereafter Ann finishes her Peace Corps service. She is followed in her site by a volunteer who is particularly interested in cooperative development. This volunteer never seems to develop the same rapport with his Ministry supervisor that Ann had, and the official is not willing to go out of his way to make the special effort to order seed early for the farmers the next year. Thus, though they continue to cooperatively market their onions and other vegetables, farmers in the village where Ann lived are forced to buy their seed once again from travelling peddlers.

Case Study II

Tony is a Peace Corps extension agent entering a village that has never had a Peace Corps Volunteer before. The Peace Corps program he is assigned to is considered a rural development program. It is relatively new - three years old and is just beginning to isolate the most pressing needs of the host country's rural people.

Tony's training is primarily in a package of new innovations designated by government research stations as the central component in a "crash" Ministry of Agriculture program to dramatically improve maize production. The package includes: land preparation techniques, introduction of hybrid seed varieties, several different improved planting methods, recommendations for spacing and timely weeding of crops, use of chemical fertilizers and the controlled use of pesticides. Construction of water wells and latrines and cooperative marketing were secondary emphases in the training course.

Tony arrives in his site accompanied by his supervisor in a Ministry of Agriculture Land Rover. After meeting the town mayor and several of his counselors, Tony discovers that, as yet, there is no place for him to stay in the village. There is some commotion and quite a bit of discussion that Tony does not understand as different landowners in town are sent for and the Ministry supervisor tries to negotiate some arrangement.

Finally, everyone marches to one end of town to look at a house that has been selected for Tony's use. The house has not been completed yet, it lacks doors and windows, a cement floor and a latrine. Still, it seems large and comfortable enough to suit Tony's needs. A rental agreement is made and it is decided that Tony will be the guest of the mayor until the house is finished.

As it turns out, Tony spends the first month and a half living in two adjacent rooms in one of the mayor's houses waiting for work on his own house to be completed. At one point he decides to contribute some of his own money to buy the materials the landowner needs to proceed with construction. At another, work is delayed because the man digging his latrine becomes ill for several days. Finally, everything but some of the latches on the windows has been completed and Tony moves in.

These first six weeks are from Tony's perspective, full of frustration. He finds that he has to put a lot of time and energy into motivating people to keep working on his house. Consequently, he does not have a chance to get around the village and meet as many farmers as he wants to. It is nearing the planting season for maize and Tony has made only a few contacts with people who might be interested in trying some of the new practices he was taught in training.

To make up for lost time Tony discusses with the mayor the possibility of calling a farmers' meeting. Its purpose would be for Tony to formally introduce himself and describe to farmers some of the new agricultural techniques he has come to promote in the area. The mayor agrees to call farmers together three nights hence.

At the meeting, Tony gives a short speech explaining where he has come from and that he has been sent to the village to work with farmers in agriculture. He tells the farmers present that he has special training in maize production and that if any of them are interested he can show them maize growing methods that will more than double their current yields. The mayor follows Tony's speech with a call to farmers to be cooperative with Tony. He says that it is a rare opportunity to have someone come in from the outside to help develop the town and villagers should take advantage of such assistance while it is available. Before the meeting breaks up, Tony makes a list of more than a dozen names of men who say they are interested in the new maize cultivation techniques.

Over the next few weeks, Tony discovers that the meeting has served very little purpose. Within the ethnic group that is predominant in the village, maize growing is done almost exclusively by women farmers, not by men. The response at the meeting was apparently prompted by the mayor's remarks. This becomes apparent only after Tony has made several fruitless attempts to meet with some of the men who were present at the meeting to discuss plans for the upcoming cropping season.

Tony forges ahead over the next three or four months with his attempts to promote improved maize production methods to women farmers, despite several difficulties he encounters along the way. The first is a language barrier. Most of the men in the village speak a dialect that is used all over the country for communication between ethnic groups. This is the dialect Tony learned in training. Most of the women, on the other hand, are less well-travelled than the men and can consequently speak only the very localized village dialect. Tony is forced to communicate with them through two women who can speak some of the outside dialect until he can learn to speak the local language himself. This is a cumbersome process and work moves slowly.

A second problem relating to sex roles in the village is that most of the cash-generating enterprises - cash crops government service jobs, and the like - are controlled by men. Women farmers, by and large, do not have the capital to invest in the seed, ag chemicals and labor requirements called for in the package of innovations Tony has been trained to promote. This places even greater restictions on the work.

The final difficulty is a very basic lack of trust. Farmers simply do not believe what Tony says about the potential yields to be had in adopting the package of innovations he is recommending. A research station less than 40 km away has achieved very favorable results in on-farm trials in villages only a few kilmeters down the road, but it seems that Tony's neighbors are not to be convinced until they actually see results for themselves.

The immediate consequence of these difficulties is that Tony has to drastically redirect his promotional efforts from the plans he had originally developed for his work. His first step on the new course is to take soil samples from several of the farms in the area to the research station for testing. This gives him information he needs to know in order to recommend the variety of seed best suited to local farm management practices (e.g. the absence of chemical fertilizers).

Next, Tony procures quantities of seed to loan to farmers for use in small on-farm result trials. Many people have planted already by the time he brings the seed to the village, but a handful of farmers still take the chance to try a new variety. Of these, only three or four adhere strictly to the planting instructions Tony suggests to them, the others preferring the more traditional and time-saving practices of wider spacing and more seeds per hole.

A month or two later, Tony's focus has shifted to the need for timely weeding in the maize fields. This advice is either wholly ignored or only partially accepted. There are just too many other competing demands on women's time to allow for a thorough weeding of crops at precisely the correct stage of plant growth.

Only two women have enough money to purchase fertilizer, even though many of the women have heard of it and would like to try it sometime in the future when they can better afford it. Tony works with the two women to show them how to make the most efficient use of the limited amounts of fertilizer they have purchased. Like some of the other efforts, however, the effects of fertilizer use are muted by improper application of other aspects of the extension package.

Harvest time rolls around and as expected, the results show only a slight improvement over past years. No one is greatly disappointed and in one or two cases gains from the new practices are quite apparent. Still, Tony is frustrated. After a whole season's work, there does not seem to be much to show for everyone's efforts.

One curious fact about the harvest catches Tony's attention. Many of the women in the area live at the subsistence level, supplying most of their own food needs from what they grow themselves. This fact notwithstanding, Tony notices that no sooner have women finished harvesting than they carry most of their grain to the market for immediate sale.

Tony asks several of the women he works with why they are not keeping more of their harvest for personal consumption in the months ahead. They respond almost to a person that they cannot keep any more corn than the one or two bags they have already set aside because they will lose too much of it to rats and mildrew in storage.

This is new information to Tony, and he devotes quite a bit of time to thinking about it. He has not been trained in effective grain storage techniques, so he is unsure how to go about helping villagers put a stop to their problems. In order to better educate himself as to what practices are currently being employed, he conducts a farm survey.

What he finds is a wide variety of storage methods. Most farmers leave the grain on the ear during storage. The ears are stored in either large strongbox-type storage bins, or they are piled on mats in rooms set aside for grain storage purpose. Some farmers shuck the grain from the ear before storing the shell corn in burlap bags in lofts in their houses. In most cases, the condition of the stored grain is not good. The maize is generally not adequately dried, some is infested with insects, and rats are running rampant.

To get a better handle on the storage problem, Tony does some additional investigating. He talks to officials at the research station and tours their storage facilities. The latter are quite impressive, but do not appear to be very appropriate to the situation faced by most of the farmers with whom Tony works.

Tony also travels to the captial city to do some checking at the Peace Corps' resource center. Here, he finds two or three reference works on intermediate storage technologies. He copies several of the grain silo and storage crib designs and returns to the village.

There he continues monitoring storage conditions in bins around town. He convinces two farmers that their maize needs additional drying in the sun before it can be left in storage. And he talks to several others who are having terrible problems with rats. Most just shrug off the situation and say there is nothing they can do.

Even while making those rounds, Tony begins experimenting with some of the new storage designs to see if they are feasible when made with local materials. A neighbor helps him find vines and certain types of tree bark that can be used to lash sections of bamboo together. The two find, however, that the bindings suggested in the plans Tony has do not work effectively with some of the taller structures. By trial and error, they come up with a strong knot to use.

Together they make a set of scale models that Tony uses to talk with farmers about storage problems. Those who experience the greatest difficulties with storage offer suggestions on how to meet their particular needs. Those who have the greatest success in storing their harvest offer tips on how to improve the designs. Most of the attention in the discussions Tony has with farmers focuses on rat control devices - stilts and metal shields to prevent rats from grawing their way into maize cribs and bins. Two or three of the designs seem to meet with far greater approval from farmers who look at the scale models than the others. Tony builds full-scale models of these, with his neighbor's help, and fills them with grain to see how well they work at keeping the corn dry and free from rat damage.

By the time these are completely constructed, the "hungry season" is growing near and people are becoming concerned about whether or not the previous year's grain will last until the next harvest. Tony judges that the time is ripe for a demonstration of the improved storage techniques he has been testing.

To set up the demonstration, Tony visits each of the farmers he has maintained contacts with over the past several months' time and checks with them on the current status of the maize in their storerooms. Many have very few stores remaining, most have problems with rats; several have suffered losses to mildrew and insects. Tony talks with them about the new bins he has constructed and says that he is planning to make a demonstration of their effectiveness to farmers who might be interested in building one for themselves.

This first round of contacts gives Tony an idea of how many people are seriously interested in the new storage techniques. He contacts each of the farmers who seems most interested a second time to suggest two or three alternative dates for making the presentation. The general consensus is to wait eight days until a special religious observance is past, and then give the demonstration in the early evening after the women have cleaned up from their cooking chores.

In preparing for the demonstration, Tony strives to keep several things in mind. He knows that farmers are acutely aware of storage problems because of their anxiety over the upcoming hungry season, and he wants to capitalize on their clear self-interest in improvimg the way they store their crops. He also knows that farmers are more likely to fully understand and accept advice from one of their peers than they would from him, so he wants to have his neighbor help him give the presentation. Finally, he tries to think of ways to get farmers actively involved in what he says and does during the demo. He believes that once farmers see and experience how easy it is to construct a well-designed bin and understand how well it works (Tony's bins are virtually rat-free), they will freely opt to build one for themselves. Tony's neighbor is willing to help with the demonstration, so the two men sit down together and come up with a plan for the presentation that includes the following steps:

1. Invoking audience interest by passing around rat-damaged maize;

2. Pointing out the essential requirements of an effective storage bin;

3. Evaluating storage methods commonly practiced in the village;

4. Explaining and comparing the new maize crib designs;

5. Answering questions;

6. Asking for volunteers from the audience to help demonstrate construction methods;

7. Repeating steps, if necessary;

8. Answering questions;

9. Summarizing and offering follow-up.

They decide who will take what role during the different parts of the demonstration, they assemble materials - additional bush rope and bamboo - they will need, and they actually rehearse several times together the sequence of activities to make sure that things will run smoothly.

Two days before the appointed date, Tony makes rounds to all the farmers who expressed interest in coming to the meeting to remind them of the time and place where it will be held. The day of the meeting itself, Tony lays out materials where they will be handy during the demonstration. He considers where the expected audience of fifteen or twenty people will stand so they can both see and hear the presentation. And he checks with his co-demonstrator on some last minute ideas he has for avoiding snags.

Most of the women Tony expects do actually come to the demonstration. A half a dozen men even show up. The demo is carried out and Tony and his neighbor spend nearly half an hour answering very particular questions about the time needed to build the bin, construction techniques and results in terms of rat protection. One or two farmers remain skeptical of the amount of labor involved, and a third doubts that the new crib designs will be secure enough to keep theives from breaking in and stealing grain. The rest of the farmers express strong interests in having Tony help them build one or another of the designs for their own use. Discussion at the end of the evening focuses on the best time to actually begin building the new cribs. Most feel that it will be best to wait until all the crops have been planted and more time is available to devote to the construction task.

The rains begin and Tony once again works with farmers on their planting methods, stressing that fewer seeds per hill will reduce a lot of the negative effects of crowding farmers experienced the previous year.

When the planting is finished, Tony sets out to follow up on his earlier efforts to promote the new storage bin designs. At the demonstration, more than ten farmers indicated that they would like to try building rat-proof maize cribs. By the time all the crops are in the ground, only six farmers remain interested. Tony helps each of them over the course of the next two or three months to construct her own facility.

The next harvest comes in and the new bins are pressed into service. Farmers are very pleased with the way they work. There is still a small amount of rat damage, but compared to previous years there is a vast improvement. Maize in the bins also dries thoroughly. In fact, the only real problem remaining is that a percentage of the harvest is still lost to weevils.

In his end of service report, Tony details the steps he followed and the progress made in his site in introducing the new storage technology. He also lists the problems he faced and the measures he took to try and meet the special needs of the ethnic group he worked with in promoting maize production. He recommends that his successor be interested in storage problems, and that she be well versed in use of pest control measures appropriate to the insect problems farmers continue to face with their new storage facilities.

TECHNICAL I.C.E. MANUALS AND REPRINTS USEFUL TO AGRICULTURAL EXTENSIONISTS:

(Available through Peace Corps, Information Collection & Exchange, 806 Connecticut Avenue, NW. Washington, D.C., 20525 USA).

MANUAL NUMBER	
M 16	Freshwater Fish and Pond Culture and Management, 191 pages.
M 2	Small Farm Grain Storage, 560 pages.
M 3a	Resources for Development, 202 pages.
M 4	The Photonovel: A Tool for Development, 105 pages.
M 5	Reforestation in Arid Lands, 248 pages. (French version also).
M 6	Self-Help Construction of 1-Story Buildings, 235 pages.
M 7	Teaching Conservation in Developing Countries, 251 pages.
M 10	Preserving Food by Drying: A Math-Science Teaching Manual, 150 pages.
M 11	Practical Poultry Raising, 225 pages.
M 12	Animal Traction, 244 pages.
M 13	Traditional Field Crops, 386 pages

REPRINT NUMBER	
R 2	Visual Aids, 21 pages.
R 4	Agricultural Mathematics for Peace Corps Volunteers, 96 pages.
R 5	Irrigation Principles and Practices, 112 pages.
R 6	Crop Production Handbook, 147 pages.
R 7	Improved Practices in Corn Production, 44 pages.
R 8	Soils, Crops and Fertilizer Use, 103 pages.
R 9	Glossary of Agriculture Terms: Spanish/English, 107 pages.

R 10	Guide for Field Crops in the Tropics and Subtropics, 321 pages.
R 14	Guidelines for Development of a Home Industry, 59 pages.
R 15/15a	Utilization and Construction of Pit Silos, 41 pages.
R 17	Glossary of Evironmental Terms: Spanish/English, 202 pages
R 18	Manual Didactico: Huertos Escolares y Nutricion (School Garden & Nutrition), 132 pages.
R 23a	Accounting for the Micro-Business: A Teaching Manual, 76 pages.
R 25	Intensive Vegetable Gardening for Profit and Self Sufficiency, 159 pages.
R 28	Glossary of Agricultural Terms: French/English, 59 pages.
R 30	New Methods Pay With Poultry, 30 pages.
R 31	Orchard Management, 108 pages.
R 32	Lesson Plans for Beekeeping, 62 pages
R 33	Bamboo As a Building Material, 52 pages.
R 35	How To Make Tools, 51 pages.
R 36	Remote Areas Development Manual, 546 pages.
R 39	Homemaking Handbook, 237 pages.
R 40	Rice Production, 107 pages.

PACKET NUMBER	
P 2	Pesticide Safety
P 4	Small Vegetable Gardens
P 5	Cooperatives
P 6	Small Animal Production
P 8	Audio-Visual/Communication Teaching Aids

CASE
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CS 3 Forestry Case Studies

Distributors of I.C.E. materials for non-PC requestors:

Peace Corps

NTIS National Technical Information Service
5285 Port Royal
Springfield, Va 22161 USA

Volunteers in Technical Assistance
3706 Phode Island Avenue
Mt. Rainier, Maryland 20811 USA

P.D. Press
4419 39 Street, NW
Washington, D.C. 20016 USA

TransCentury Press
1789 Columbia Road, NW
Washington, D.C. 20009

There are many other sources of information on Agricultural Extension and related subjects. US AID, USDA, State Cooperative Extension services and local county extension services are examples in the United States. Host country extension services, the World Bank, UNDP and other development agencies may also be sources of information.

EXTENSION TRAINING

How can a person be adequately prepared to play the role of an agricultural extension worker with small-scale farmers? Some people attend agricultural colleges and by virtue of formal technical training become professional extensionists. Peace Corps and other development agencies train people to work as para-professional extension agents. In still other instances, extension workers can work in the field with little or no formal agricultural or extension training.

Several things are common to the preparation of these different types of extension workers. None of them is adequately prepared to work in the field by virtue of their pre-service training alone. Each extension worker is the "stranger in a strange land" when visiting farmers' fields for the first time (even in spite of being rom the local community). Agriculture and communication are so location and time-specific that actual extension work begins with learning even after extensive training.

Almost all extension workers find themselves in an organization of some type. Most extensionists also follow some previous extension worker or come up against set ideas and expectations of extension work. These pre-determined conditions cannot be anticipated very well, and constitute the first obstacle to successful communication. Extension work, like agriculture itself, is a process of adaptation.

This suggests that extension work is best learned by experience and apprenticeship. Extension training is an on-going process which continues throughout extension service. The pre-service training extension workers receive should offer two things: basic skills and knowledge to begin effective work, and the ability to continue learning about extension and agriculture.

Peace Corps aspires to prepare para-professional extension agents through pre-service training in agriculture and extension and periodic in-service trainings on specific topics. There is a four volume Agricultural Development Workers Training Manual which is a resource for Peace Corps agriculture training available through ICE and:

Ag Sector Specialist
Office of Program Development
Peace Corps
806 Connecticut Avenue, NW
Washington, D.C. 20526

The World Bank has pioneered a rigorously organized agricultural extension training process called the Training and Visit System. It is described in detail in a World Bank pamphlet available through Peace Corps ICE. The Training and Visit System works like this:

- Extensionists work with groups of farmers.
- Those groups are visited on a regularly scheduled calendar. (For example, every other Tuesday)

- Every visit the extension worker delivers a very specific field-tested, locally-adapted, properly-timed message. (For example, how to prepare a wet-season seedling bed).
- The extensionists in an area meet together on a regularly-scheduled calendar with a Training Officer and their supervisor. They learn the message for that particular set of visits, discuss their work, and perhaps do other business.
- The extension workers repeat this regular series of training meetings and farm visits throughout the extension/farming season.

This system can be adapted to various situations and is therefore a useful model of how extension training can be designed.

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Since 1961 when the Peace Corps was created, more than 80,000 U.S. citizens have served as Volunteers in developing countries, living and working among the people of the Third World as colleagues and co-workers. Today 6000 PCVs are involved in programs designed to help strengthen local capacity to address such fundamental concerns as food production, water supply, energy development, nutrition and health education and reforestation.

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